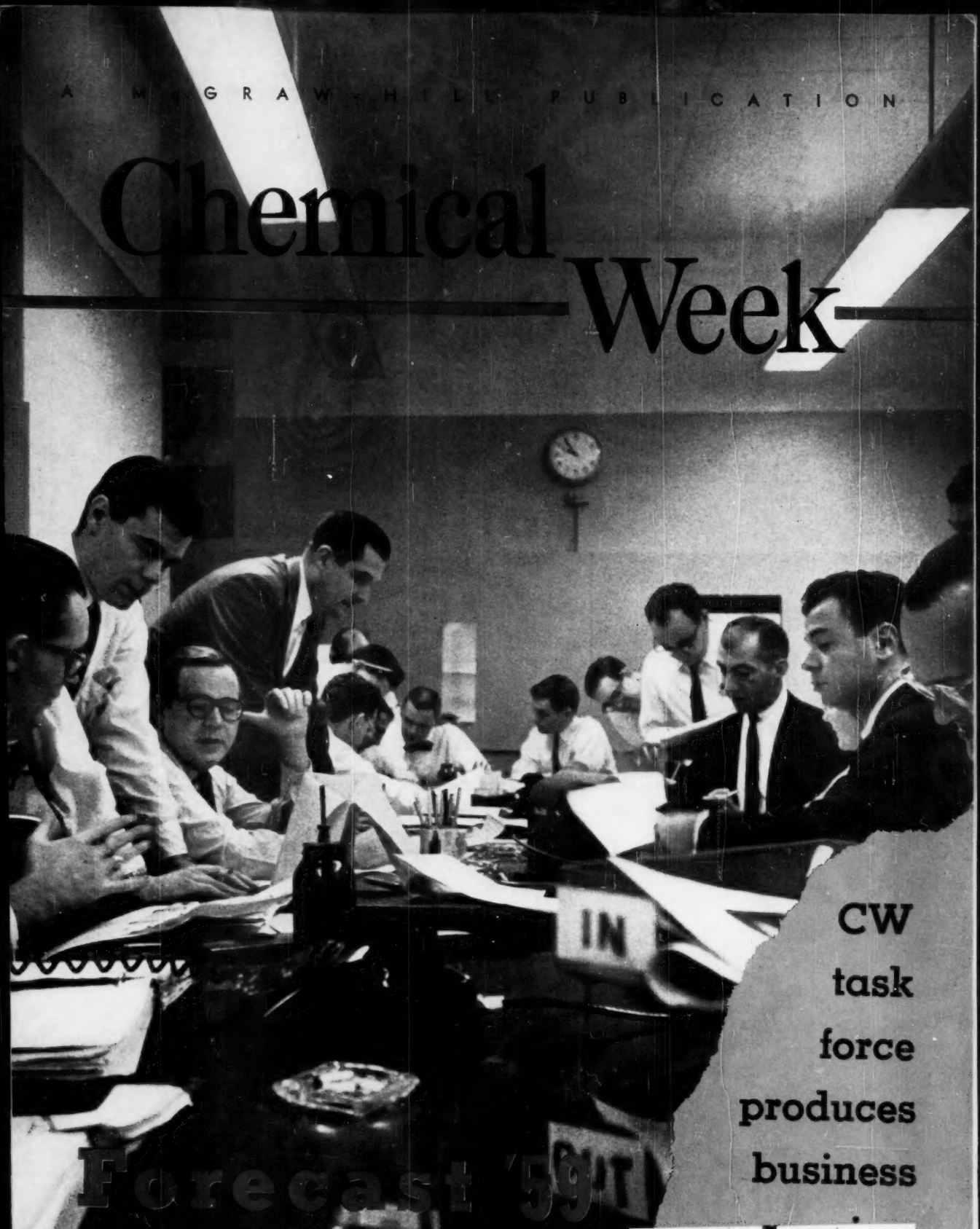
A McGRAW-HILL PUBLICATION

Chemical Week



CW task force produces business

Forecast '59

Price 35 cents
December 27, 1958

STEVENS INST TECH
UNIVERSITY MICROFILMS
313 N 1ST ST
ANN ARBOR MICH

More REACTIVE

SOLVAY CAUSTIC POTASH

...produces MORE SOLUBLE END PRODUCTS!

Many users select caustic potash, rather than lower cost caustic soda, because it saponifies fats and grease more readily, and—most important—provides extra efficiency.

Since it is more reactive, the products made from it are also generally more reactive—more soluble, more effective. In fact, many powerful cleaners—including some of the popular heavy-duty liquid detergents—are based on products produced from caustic potash.

We invite you to make your own test of SOLVAY Caustic Potash. Available in two grades—Technical and Mercury Cell—dry forms and liquid, in steel drums and tank cars.

Sodium Nitrite • Potassium Carbonate • Caustic Soda • Chlorine
Calcium Chloride • Sodium Bicarbonate • Ammonium Choride
Caustic Potash • Chloroform • Vinyl Chloride • Methylene Chloride
Para-dichlorobenzene • Methyl Chloride • Cleaning Compounds
Hydrogen Peroxide • Aluminum Chloride • Ammonium Bicarbonate
Soda Ash • Carbon Tetrachloride • Mutual Chromium Chemicals
Monochlorobenzene • Ortho-dichlorobenzene • Snowflake® Crystals

SOLVAY dealers and branch offices are located in major centers from coast to coast.

Mail now for test sample!

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

Please send me without cost:

Samples of Technical Grade Caustic Potash
☐ Flake ☐ Small Flake ☐ Solid
☐ Walnut ☐ Liquid, 45% strength
☐ Liquid, 49-50% strength

Samples of Mercury Cell Caustic Potash
☐ Flake ☐ Liquid

☐ Caustic Potash fact book

Name_____

Position_____

Company_____

Phone_____

Address_____

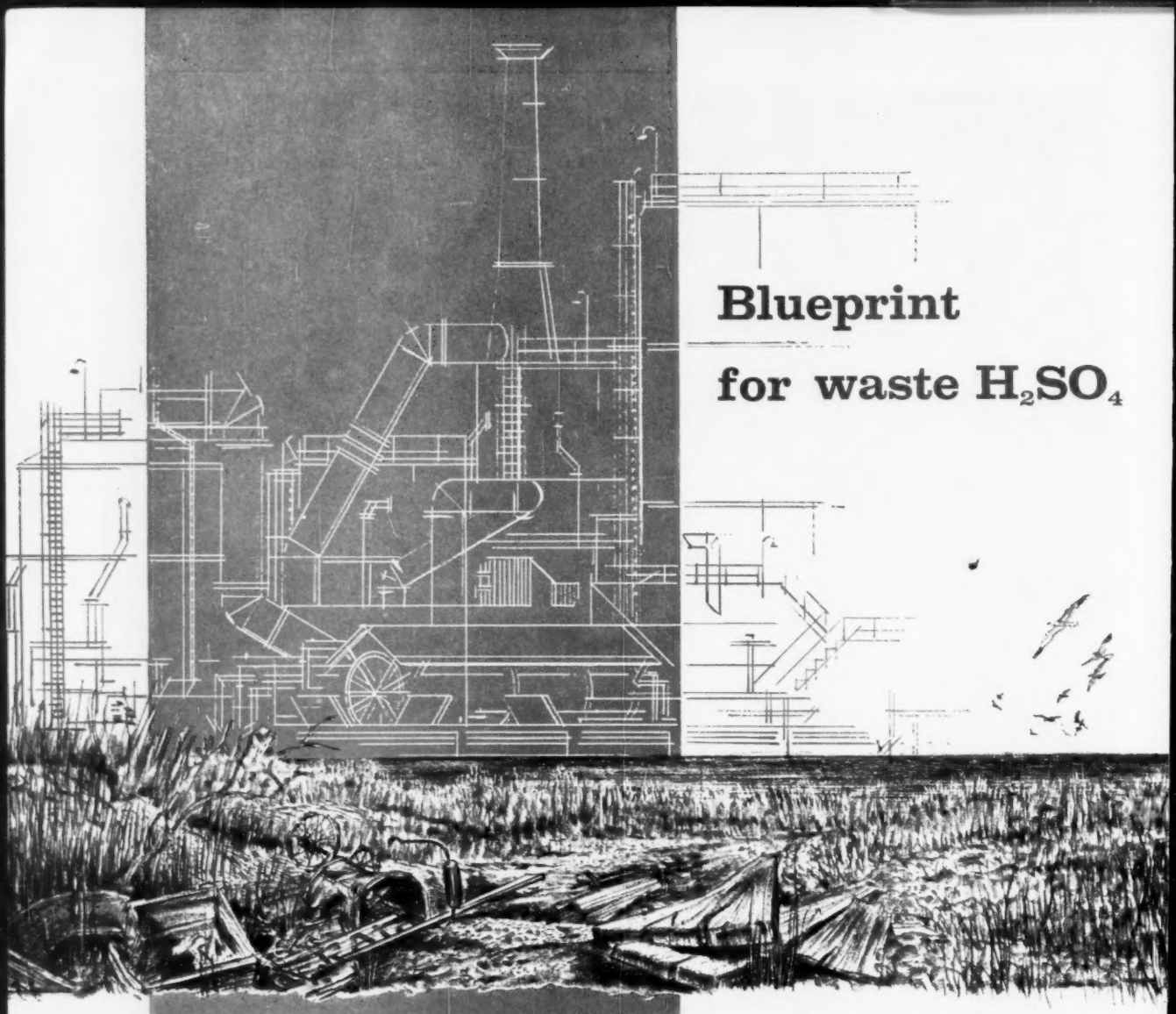
City_____ Zone____ State____ DP-128

THIS MAN'S A SPECIALIST IN PROTECTING YOUR PROFITS. His title is Dowell Service Engineer. His job—to study your maintenance cleaning problems, recommend the proper solutions and apply chemical solvents to help you make more profit. He represents a team of specialists who have rendered old-fashioned all other methods of cleaning product, process and steam generating equipment. His method is Dowell Service, the modern way—using solvents—to remove scale and sludge from all kinds of metal equipment, tanks, piping and lines.

Specifically: one processor had been performing his own turnaround service—using mechanical methods—at an annual cost of $315,000. The Dowell Service Engineer and his team performed the same service in 1/10 of the time at a cost of $2300. The savings in downtime alone amounted to $210,000.

If your maintenance and operating engineers do not know the profit possibilities with Dowell Service, ask them to get the facts for you. For specific information on how chemical cleaning can help your plant to greater profits, call the Dowell office nearest you. DOWELL—A SERVICE DIVISION OF THE DOW CHEMICAL COMPANY. Headquarters and research center, Tulsa, Oklahoma, with 165 offices and stations to serve you.

chemical cleaning services for industry DOWELL



Blueprint for waste H_2SO_4

Dixon Chemical Industries, Inc. is now breaking ground at Paulsboro, New Jersey for one of the largest and most modern sulfuric acid decomposition plants in the world. This plant, specially designed to regenerate spent sulfuric acid will be the answer to the old problem of waste sulfuric acid. These facilities will be available to the large concentration of refineries in the heart of the Delaware Valley as well as other Eastern consumers having a waste acid problem.

DIXON CHEMICAL INDUSTRIES, INC.
1260 Broad Street, Bloomfield, N. J.
Executive Offices: EDison 8-4000
New York Phone: WOrth 2-2125
Philadelphia Area Office:
Cuthbert Rd., Merchantville, N. J.
NOrmandy 5-0100 — Phila. MArket 7-0954
New England Office: 87 Weybosset St.,
Providence, R. I. GAspee 1-1096

DIXON
CHEMICALS

Chemical Week

TOP OF THE WEEK

DECEMBER 27, 1958

- **Accelerating pace of building activity** presages heftier demand for chemical materials of construction in '59 ..... **p. 20**
- **Du Pont will produce linear polyethylene** at existing Orange, Tex., plant site under its own "composition of matter" patent ..... **p. 21**
- **International Minerals launches two-prong customer-education** program to boost fertilizer sales ..... **p. 33**
- **New York City is looking for detergent suppliers:** it's planning a yearly washing of subway tunnel walls ..... **p. 80**

17 BUSINESS NEWSLETTER

20 Sizable uplift in CPI sales foreseen from rise in construction activity.

21 Du Pont plans commercial production of linear polyethylene at existing Orange, Tex., plant site.

22 Dow Chemical prospects improve as big expansion projects move to payoff phase.

22 Industry drives for "more realistic" coal-tar color law after high court rules that present law forbids controlled use of certain colors in foods.

23 Small, 84-year-old Borne Chemical jolts Wall Street with acquisition of new, plastic-container filling process.

25 WASHINGTON NEWSLETTER

29 RESEARCH
Russian plastics team winds up U.S. visit, tells *CW* of Soviet goals in plastics research manufacture.

33 SALES
International Minerals starts new phase in fertilizer "soft sell" with customer training sessions.

37 CW FORECAST
CHEMICAL WEEK editors chart the year ahead for the chemical process industries.

56 ADMINISTRATION
Southern states promote peaceful atomic industry with first regional planning group.

59 Kentucky grand jury probes problems of water pollution.

59 Georgia court decision says employees can't be forced to join a union that spends for purposes of which they do not approve.

61 TECHNOLOGY NEWSLETTER

64 ENGINEERING
New borohydrides seek process jobs. Example: removal of carbonyls from oxo-alcohols.

69 MARKET NEWSLETTER

73 MARKETS
Chemical companies move into the particleboard business to boost markets for resin binders, waxes.

76 PRODUCTION
Plas-Tech Equipment introduces commercial high-speed test unit. Application: relating properties of plastics, metals to use conditions.

80 SPECIALTIES
New York City is buying detergent to clean its 560 miles of subway walls. Scrub-up will be annual job, promises substantial syndet market.

86 VIEWPOINT
The Walsh-Healey Act may force a new boost in chemical wages. But the law itself has outlived its usefulness.

86 OPINION

86 MEETINGS

COVER PHOTO BY LIONEL CRAWFORD

42,159 copies of this issue printed

Vol. 83
No. 26

Chemical Week is published weekly by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 36, N. Y. Place of publication: 3rd and Hunting Park Ave., Philadelphia 40, Pa. Second-class postage paid at Philadelphia. Subscription: $3/year in U.S.A. Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week. Please see page 9 for subscription requirements.

Postmaster: Please send Form 3579 to Chemical Week, 330 West 42nd St., New York 36, N. Y.

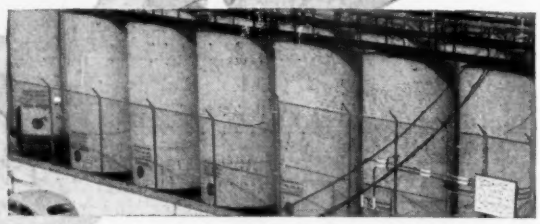
SAFE!

General American terminal keeps alcohol under "lock and key"!

Ethyl alcohol is a "problem" liquid when it comes to storage because close Federal tax supervision holds producers accountable for every gallon. A major producer who stores alcohol in General American's Carteret terminal doesn't have this problem—General American assumes it for him.

In addition to storage, the terminal provides a variety of services—metering, blending, diluting, denaturing and packaging—all provided with the necessary accountability and accuracy that solves a difficult marketing problem.

If you have a storage problem involving hard-to-handle liquids, call on General American. Leased terminal facilities give you the privacy, safety, flexibility and service of your own terminal—*without capital investment on your part.* Phone or write today. You'll find . . . *it pays to plan with General American.*



Six terminals at five key-market locations with over 14,000,000 barrels capacity: PORT OF NEW YORK (Carteret, N. J.), PORT OF NEW ORLEANS (Good Hope, La.), CHICAGO, ILLINOIS (Bedford Park), PORT OF HOUSTON (Galena Park and Pasadena, Texas), CORPUS CHRISTI, TEXAS.

TANK STORAGE TERMINALS GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TANK STORAGE TERMINALS
a division of GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South La Salle Street • Chicago 90, Illinois

Fragrance...the hidden sales persuader

Toilet soap, hand lotion, cologne
... even floor wax and plastic fabrics ...

the intelligent use of fragrance is adding sales appeal and brand preference to thousands of products you'd never suspect.

Through the miracles of modern organic chemistry, over 3000 new synthetic aromatic materials are now available to the fragrance specialist to help him add attractiveness and improve product appeal.

Let us show you how fragrance can add SALES APPEAL to your product.

van Ameringen-Haebler, Inc.

521 West 57th St., New York 19, N. Y. • Chicago • Toronto • Paris

Leading producers and creators in the world of fragrance

Your Solid-Liquid Separators belong in this picture

These Bird Continuous Solid-Bowl Centrifugal installations, and hundreds like them, cover everything from aluminum hydrate to zinc sulphide, from coal to cryolite, from ultramarine pigment to uranium.

All have one thing in common. They make highly effective use of positive, powerful centrifugal force to do the separating job.

All we ask is the chance to determine (by pilot-scale test of the actual slurry at the Bird Research and Development Center, if need be) whether *your* solid-liquid separations can be accomplished *better, faster and at lower cost* by this modern method.

Isn't this something you'd like to know? If so, just get in touch with us.

BIRD

LEADING AUTHORITY ON SOLID-LIQUID SEPARATIONS

Builders of

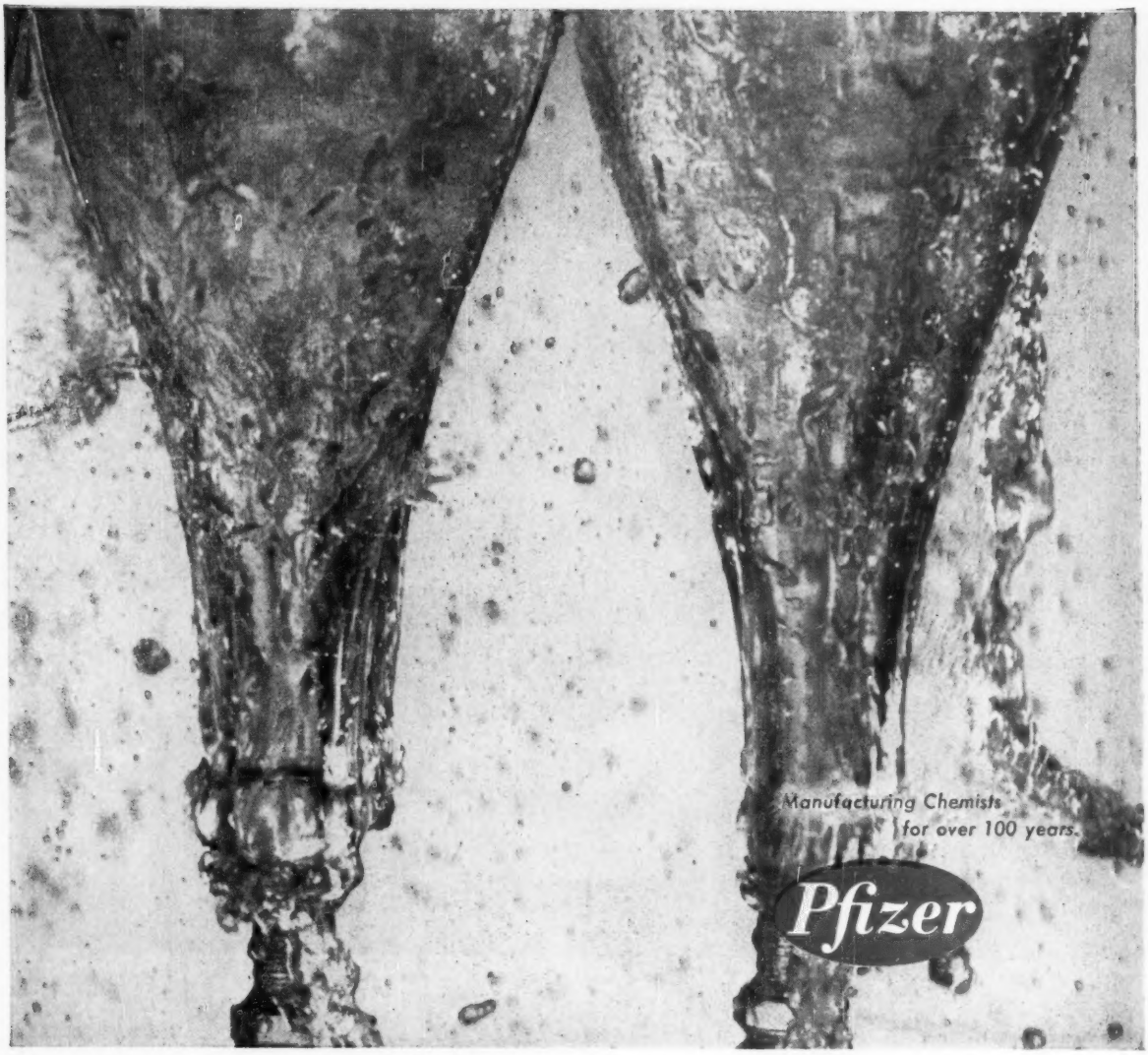
- Bird Continuous Centrifugal Separators
- Bird-Prayon Continuous, Rotary, Horizontal Vacuum Filters
- Bird-Young Single Cell Rotary Vacuum Filters
- Bird Horizontal Tank, Vertical Leaf Pressure Filters
- Bird-Humboldt Screen Type Oscillating Centrifuges
- Bird Suspended Centrifugals • Bird Centrifugal Classifiers
- Bird Continuous Centrifugal Coal Filters • Bird Polishers

For specific information on individual machines write:

BIRD MACHINE COMPANY

South Walpole, Mass.

Regional Offices:
Evanston, Illinois
Walnut Creek, California
Atlanta 9, Georgia



WASH AWAY RUST AND HAZE!

add Pfizer Gluconic Acid or Sodium Gluconate to your washing solutions

Why add Pfizer Gluconates to your caustic washing solutions? Because, of all commercially available sequesterants sodium gluconate has proved to be most efficient in preventing precipitation of those calcium and magnesium salts which spot your bottles.

The inclusion of Pfizer Sodium Gluconate in your hot caustic cleaning solutions will result in the following bottle washing benefits:

In addition, Pfizer Sodium Gluconate almost entirely eliminates the problem of rust and scale fouling of washing chains, pockets, heating coils, tanks and carrier sections.

Write Pfizer for complete technical data from which you can readily determine what level of sodium gluconate or gluconic acid is required to most effectively increase the efficiency of your bottle washing operations.

1. Elimination of haze
2. Elimination of rust spots on bottles
3. An increase in the efficiency of aluminum label removal
4. Reduction of maintenance costs
5. Prevention of rust and scale on washer equipment
6. Free rinsing and the reduction of caustic "carryover"
7. Stability of solution

Chas. Pfizer & Co., Inc., Chemical Sales Division
630 Flushing Avenue, Brooklyn 6, N. Y.
Branch Offices: Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.; Atlanta, Ga.; Dallas, Texas

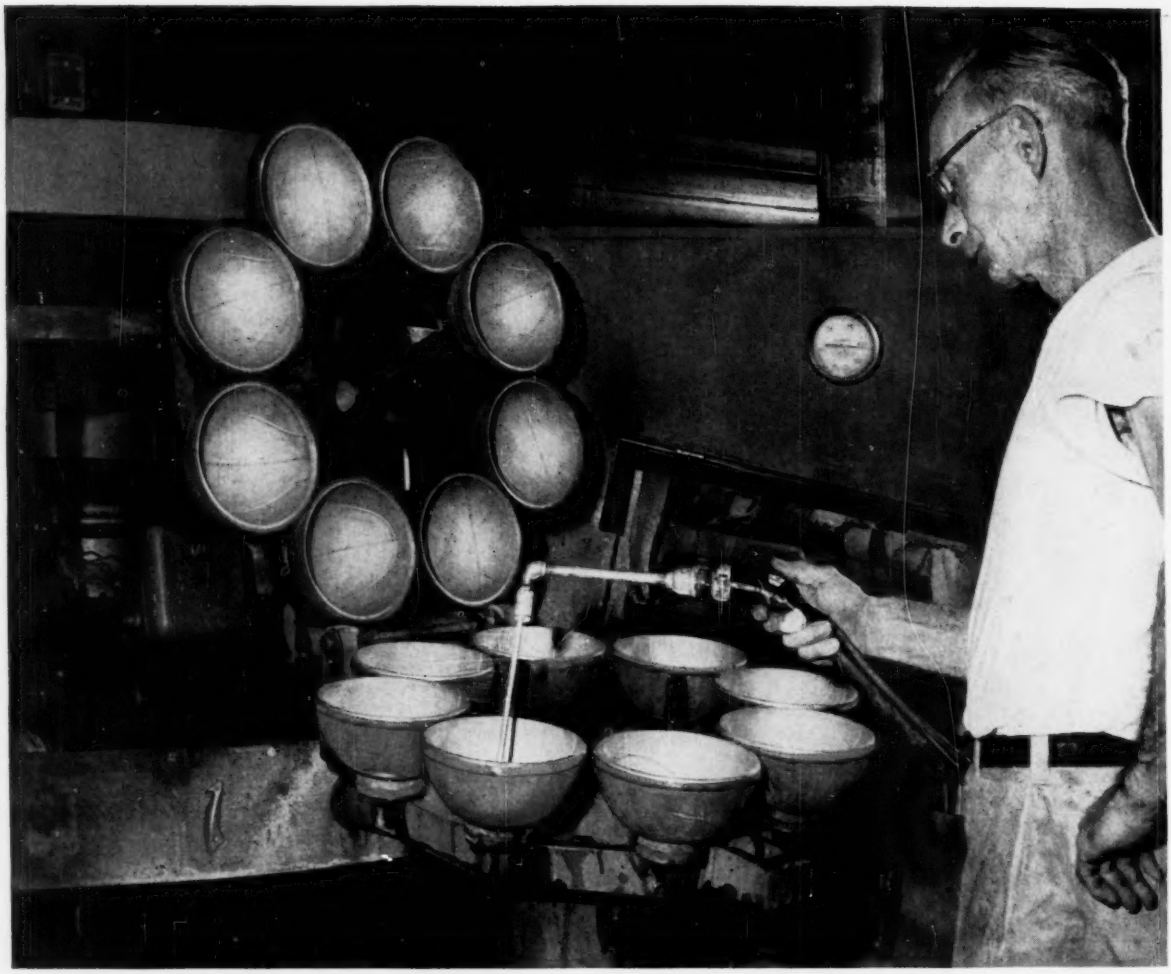


Photo courtesy National Latex Products Company, Ashland, Ohio.

For trouble-free slush molding of vinyl plastisols...Monoplex S-73

MONOPLEX S-73 ester plasticizer provides the formulator of vinyl slush molding compounds with the basic properties he needs for trouble-free production—low viscosity for ease and uniformity of molding . . . low volatility to resist the heat of high-speed molding . . . stability against increases in viscosity. In addition, this monomeric ester imparts the qualities of low temperature flexibility and resistance to heat and light degradation that mean products with a long, satisfactory service life.

If you are making dolls, toys, balls—or any products where these qualities are important—you'll want complete information on the MONOPLEX monomeric plasticizers and the PARAPLEX family as well.

Whether you need plasticizers with outstanding resistance to migration or resistance to extraction by soaps, detergents and hydrocarbons, there is a MONOPLEX or PARAPLEX grade to answer your need effectively and economically.

Send for the booklet *What You Should Know About* PARAPLEX *and* MONOPLEX *Plasticizers.*

PARAPLEX *and* MONOPLEX *are trademarks, Reg. U.S. Pat. Off. and in principal foreign countries.*

Chemicals for Industry

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

Representatives in principal foreign countries

MONOPLEX S-73

Chemical Week

Wallace F. Traendly ..... Publisher
Sidney D. Kirkpatrick ..... Editorial Director

Howard C. E. Johnson ..... Editor-in-Chief

Ralph R. Schulz ..... Managing Editor
William Olcott ..... Assistant Managing Editor
J. Robert Warren ..... Assistant Managing Editor
Donald P. Burke ..... Associate Editor
Anthony J. Piombino ..... Associate Editor

DEPARTMENTS

Administration ... Cooper R. McCarthy, *editor;* Leo J. Northart
Business News ... Homer Starr, *editor;* Robert L. Porter, Bruce Bendow
Engineering ... Kenneth C. Wilsey, *editor;* Philip A. Untersee
Markets ... Jorma Hyypia, *editor;* Frank S. Sciancalepore
Production ... Herbert C. Short, *editor*
Reports ... Vincent L. Marsilia, *editor*
Research ... Joseph F. Kalina, *editor;* Sanford J. Durst
Sales ... John M. Winton, *editor*
Specialties ... Richard J. Callahan, *editor;* Mary Thompson
Copy .. William Mullinack, *editor;* Henry S. Gordon, John Philbin
Art ... R. D. S. Marshall, *director;* Dolores Able
Buyers' Guide ... E. L. Sisley, *editor;* Betsy L. Emery

REGIONAL EDITORS

Far West ... Emil J. Mikity, San Francisco
Southwest ... James A. Lee, Houston
Midwest ... T. Peter Forbath, Chicago

NATIONAL AND WORLD NEWS

Economics ... Dexter M. Keezer
Manager, News Bureaus ... John Wilhelm

Atlanta ... B. E. Barnes
Chicago ... Stewart Ramsey
Cleveland ... William Meldrum
Dallas ... Kemp Anderson, Jr.
Detroit ... Donald MacDonald
Los Angeles ... John H. Kearney
San Francisco ... Margaret Ralston
Seattle ... Ray Bloomberg
Washington ... George B. Bryant, Jr.
Correspondents in 75 principal cities.

Beirut ... O. M. Marashian
Bonn ... Morrie Helitzer
Caracas ... John Pearson
London ... Robert Gibson
Melbourne ... Alicja Grobtuch
Mexico City ... Peter Weaver
Moscow ... William J. Coughlin
Paris ... Robert E. Farrell
Tokyo ... Sol Sanders
Correspondents in 61 principal cities.

Robert S. Muller ... Advertising Sales Manager

Business Department ... Alvin J. Babkow, *manager*
Sales Promotion Department ... Fred E. Lesner, *manager*
Market Service Manager ... Margaret J. Swikart
Advertising Makeup ... Robert L. Maier
Advertising Salesmen ... See Adv. Index, p. 84

Paul W. Erb ... Circulation Manager
Frances Regan ... Reprints

DECEMBER 27, 1958 **Vol. 83, No. 26**

Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Co., James H. McGraw (1860-1948), founder. EXECUTIVE, EDITORIAL, CIRCULATION and ADVERTISING OFFICES: McGRAW-HILL BUILDING, 330 West 42nd St., New York 36, N.Y. See panel below for directions regarding subscriptions or change of address. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice-President; L. Keith Goodrich, Vice-President and Treasurer; John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Harry L. Waddell, Senior Vice-President; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising Sales; A. R. Venezian, Vice-President and Circulation Coordinator.

Subscriptions to Chemical Week are solicited from management men in the Chemical Process Industries in administration, production and plant operation, design and construction, research and development, sales and purchasing. Position, company connection and nature of company's business, products and approximate number of employees must be indicated on subscription application. Send to address shown in panel below.

United States and United States possessions subscription rate for individuals in the field of the publication, $3 per year; single copies, 35¢. Foreign subscription rates per year: Canada, $4; other Western Hemisphere, countries, $15; all others, $25, payable in advance. Printed in U.S.A. Title registered in U.S. Patent Office.

© Copyright 1958 by McGraw-Hill Publishing Co., Inc. All rights reserved. **Unconditional Guarantee:** the publisher, upon direct request from any subscriber to our New York office, agrees to refund the part of the subscription price applying to copies not yet mailed.

Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week, 330 West 42nd St., New York 36, N. Y. Subscribers should notify Fulfillment Manager promptly of any change of address, giving old as well as new address, and including postal zone number, if any. If possible, enclose an address label from recent issue of Chemical Week. Please allow one month for change to become effective.

EIMCO RESEARCH AND DEVELOPMENT CENTER

Palatine, (Chicago Suburb) Illinois

The world's first laboratory and pilot plant devoted exclusively to solving the complex problems found in liquid-solids separation through filtration, sedimentation and clarification.

THE EIMCO CORPORATION

MANUFACTURING DIVISIONS
Salt Lake City, Utah

RESEARCH AND DEVELOPMENT
Palatine, Illinois

SALES • ENGINEERING • SERVICE
All Principal Cities Throughout the World

B-351

Your detergent has more sequestering power with specially processed Shea phosphates made only by Hooker

An exclusive phosphate drying process gives you the highest sodium tripolyphosphate content in the industry—97 to 99%. This extra STPP content—available only from Hooker—gives your detergent added cleaning action. Tetrasodium pyrophosphate content averages 99% or better.

Greater Package Appeal

What's more, these spray-dried phosphates give you the opportunity for greater package appeal. Their 70% greater bulk means a 20 to 30% larger detergent package for you. Yet, Shea phosphates cost no more than conventional types.

Solution is two to three times faster than for conventional types. These spray-dried granules are hollow, air-filled beads with a greater surface area. This permits them to go into solution quickly and easily—without prolonged agitation. They are virtually dust-free and will neither bridge nor cake.

Shipments are made promptly by rail or truck from Jeffersonville, Indiana, or Dallas, Texas. Write or phone for free samples and data, or call your local distributor.

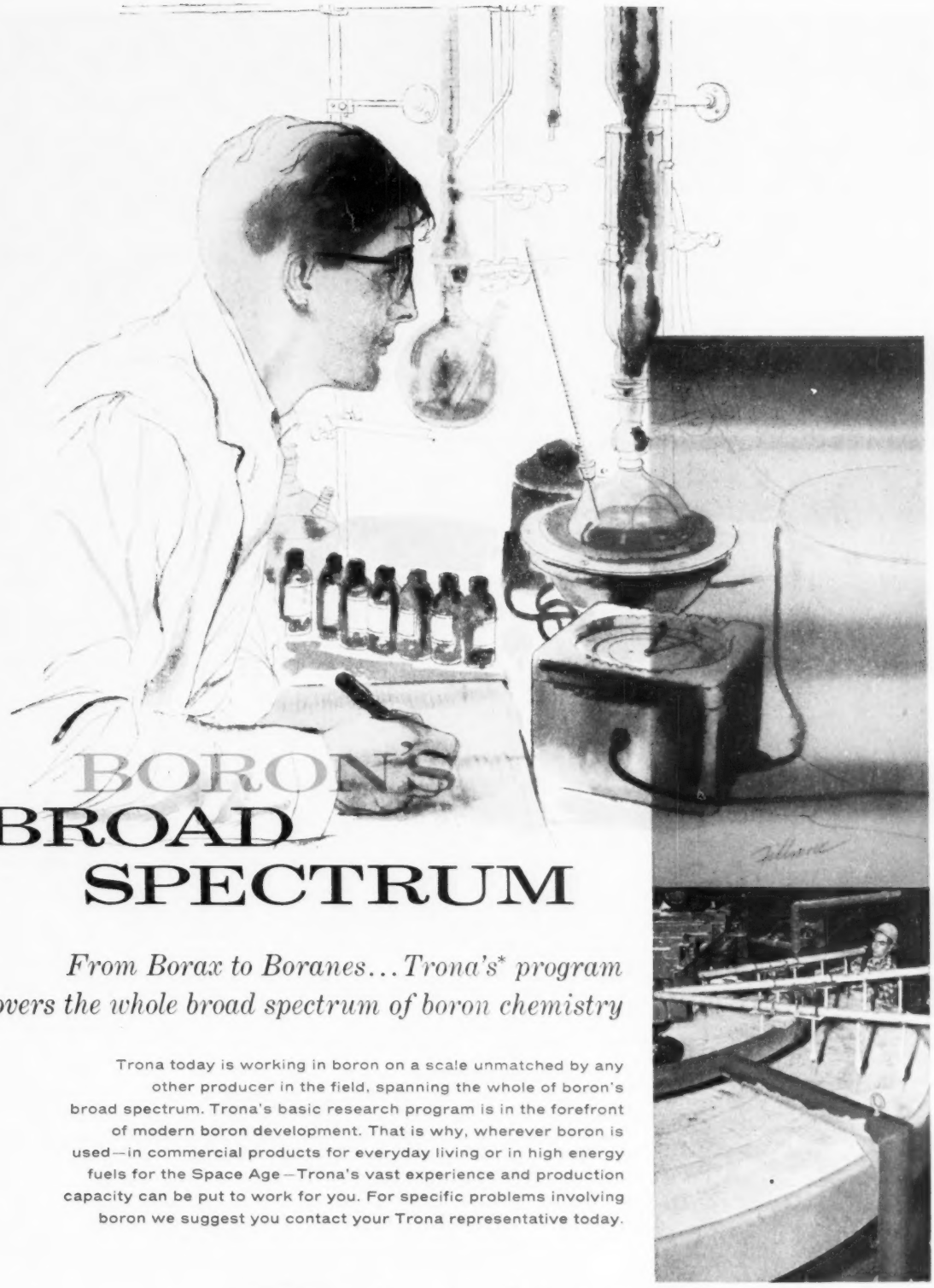
HOOKER CHEMICAL CORPORATION

PHOSPHORUS DIVISION

60 E. 42nd Street, New York 17, N. Y. MUrray Hill 2-2500

SHEA PHOSPHORUS AND DERIVATIVES

HOOKER CHEMICALS PLASTICS



BORON'S BROAD SPECTRUM

From Borax to Boranes... Trona's program covers the whole broad spectrum of boron chemistry*

Trona today is working in boron on a scale unmatched by any other producer in the field, spanning the whole of boron's broad spectrum. Trona's basic research program is in the forefront of modern boron development. That is why, wherever boron is used—in commercial products for everyday living or in high energy fuels for the Space Age—Trona's vast experience and production capacity can be put to work for you. For specific problems involving boron we suggest you contact your Trona representative today.

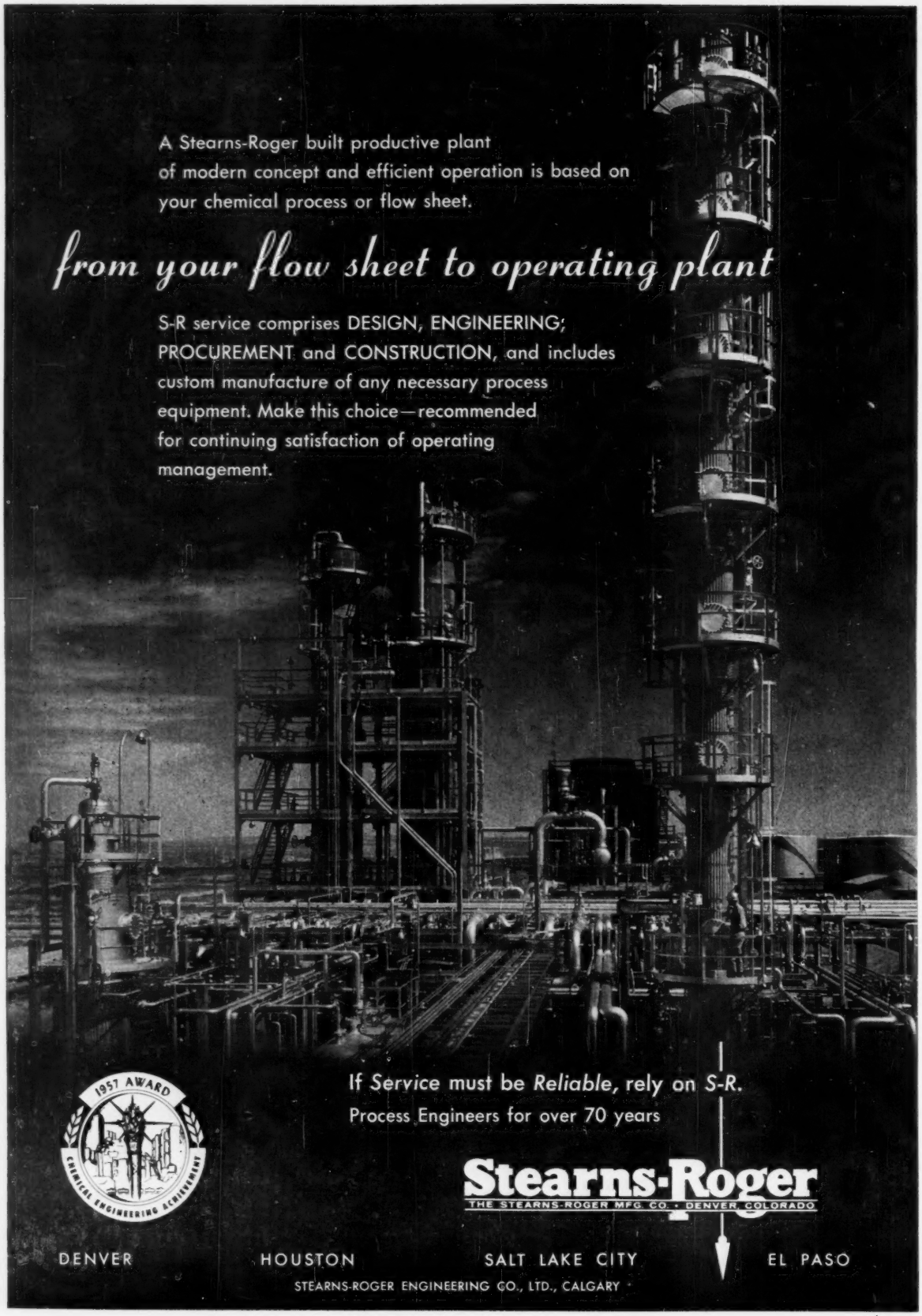
*TRADENAME AND TRADEMARK OF AP&CC

TRONA **American Potash & Chemical Corporation**

3000 WEST SIXTH STREET, LOS ANGELES 54, CALIFORNIA

OFFICES: LOS ANGELES, NEW YORK, CHICAGO, SAN FRANCISCO, PORTLAND (ORE.), ATLANTA, COLUMBUS (O.), SHREVEPORT

Other Trona Boron chemicals: BORAX (DECAHYDRATE, PENTAHYDRATE, ANHYDROUS) • BORIC ACID • ELEMENTAL BORON • TRIMETHYL BORATE • TRIMETHOXYBOROXINE • SODIUM TETRABORATE • SODIUM PERBORATE • AND BORON HYDRIDES


A Stearns-Roger built productive plant
of modern concept and efficient operation is based on
your chemical process or flow sheet.
from your flow sheet to operating plant
S-R service comprises DESIGN, ENGINEERING;
PROCUREMENT and CONSTRUCTION, and includes
custom manufacture of any necessary process
equipment. Make this choice—recommended
for continuing satisfaction of operating
management.
1957 AWARD
CHEMICAL ENGINEERING ACHIEVEMENT
If Service must be Reliable, rely on S-R.
Process Engineers for over 70 years
Stearns-Roger
THE STEARNS-ROGER MFG. CO. • DENVER, COLORADO
DENVER
HOUSTON
SALT LAKE CITY
EL PASO
STEARNS-ROGER ENGINEERING CO., LTD., CALGARY

if you use
a glassy sodium phosphate in your chemical processing or compounding...

send for Technical Bulletin on

Blockson SODIUM POLYPHOS

SODIUM HEXAMETAPHOSPHATE

67% P_2O_5

Both in chemical processing and in water treatment, there is a growing tendency to standardize on the use of Blockson Sodium Polyphos—which itself is a standardized composition—for universal application wherever a glassy sodium phosphate is indicated. It is available in ground, plate, lump and powder grades (see coupon).

The ability of Sodium Polyphos to sequester hardness elements in water, prevent soap curds, disperse solids finely (as clays in paper coating, muds in oil drilling) may suggest applications for your own processing. If so, please request a test sample with your technical bulletin (Check grade desired on coupon below).

THE BULLETIN gives brief but significant data on analysis, solubility, composition . . . it provides charts on sequestration and reversion . . . details properties and lists applications. If you use water in your processing, you will find this bulletin useful. To get it, simply attach coupon to your company letterhead.

P. S. When you buy Sodium Polyphos or any other phosphate from Blockson, you are assured of a STEADY source of supply.

BLOCKSON CHEMICAL COMPANY

Joliet, Illinois / Division of Olin Mathieson Chemical Corporation

OLIN MATHIESON CHEMICAL CORPORATION — BLOCKSON

BLOCKSON CHEMICAL COMPANY A
Div. of Olin Mathieson Chemical Corp.
JOLIET, ILLINOIS

☐ *Send Technical Bulletin on Sodium Polyphos*

Send Test Sample as Checked

☐ GROUND ☐ PLATE ☐ LUMP, Walnut
☐ LUMP, Pea ☐ POWDER

FIRM

BY

STREET

CITY ZONE STATE

Paperboard products get a real lift with TITANOX*. Packaging with greater point-of-sales appeal . . . book and magazine stocks with greater contrast and less show-through . . . opacified glassines and waxed papers with high legibility — all share in the matchless whitening, brightening and opacifying power of TITANOX titanium dioxide white pigments.

What TITANOX does for paper it can do for *your* product, whether it be paint, rubber, plastic, leather, porcelain enamel, ink, floor covering or roofing material. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

5729-A

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

*TITANOX is a registered trademark for the full line of titanium pigments offered by Titanium Pigment Corporation.

consider these FIVE reasons why you should buy Southern States drums

1. One consideration is an acceptance of responsibility. When you want drums of specific types, linings, decorations, or special delivery dates the men of Southern States Containers accept the responsibility of meeting your requirements. You can be assured your requests will be handled properly to completion.

2. All drums, both standard and special, are tested under water and by air pressure for leaks. Paint, both exterior and interior, is tested for the proper film thickness when wet and after baking to assure the highest quality containers possible.

3. The technical resources of Southern States Containers have played an important part in the decisions of some companies in using our drums. Linings are applied by a unique method and then baked in thermostatically-controlled ovens. Temperature charts are maintained on each car of drums during the baking process to assure quality control at all times. Special and standard closures are offered.

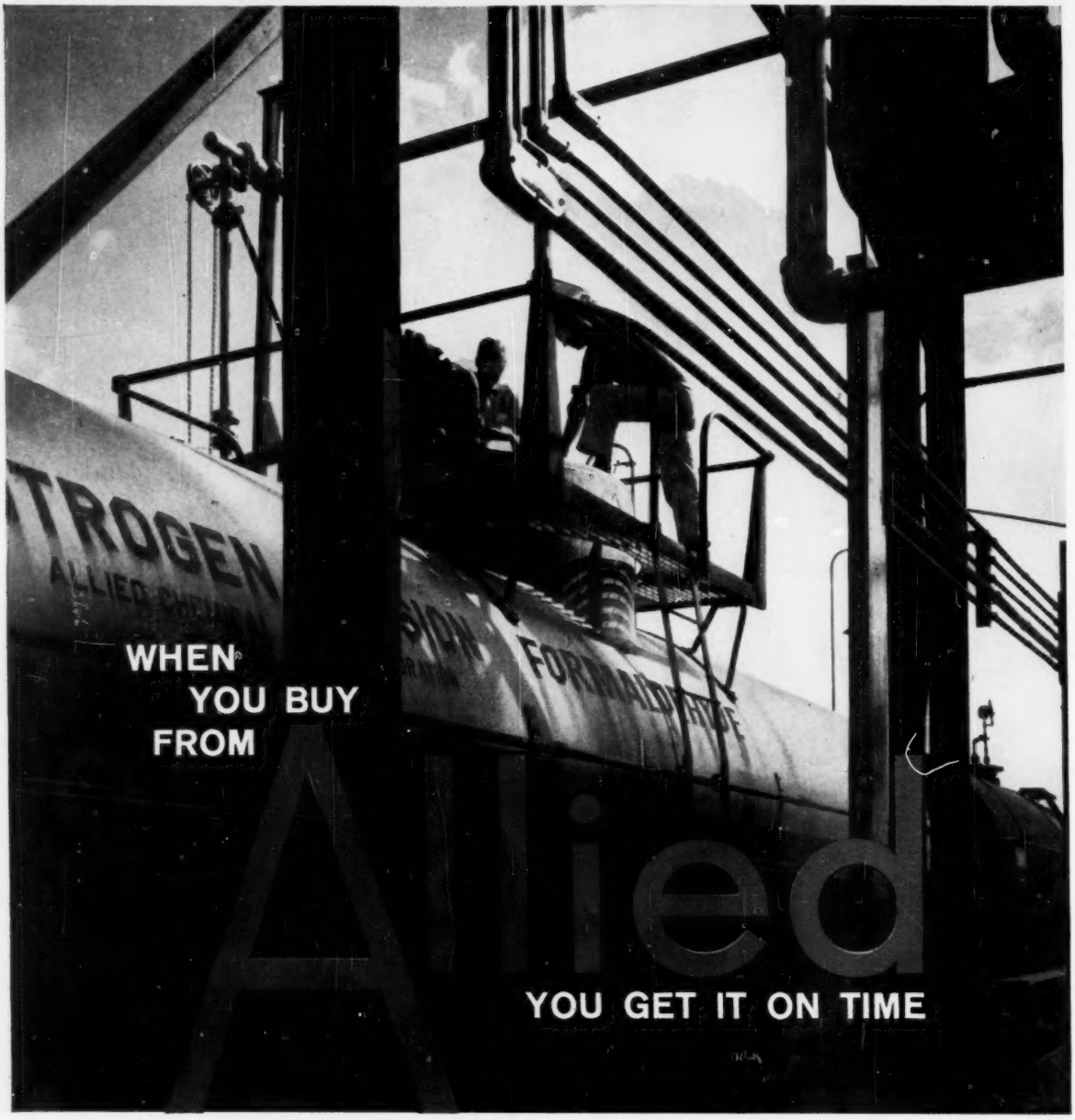
4. Standard and special drums and casings are produced and delivered on time. There is no waiting for your order of drums from Southern States. Both railroad and truck loading facilities adjoin the 113,000 square foot manufacturing plants and both are used per customer shipping requirements.

5. Performance of product in service is one reason so many prominent companies order and re-order Southern States containers. High-grade hot or cold rolled steel is used in the containers. After forming, the drums receive an acid rinse, a water rinse, phosphatizing and drying to properly prepare the metal for linings and/or decorations. Years of experience in meeting the most exacting specifications of drum manufacture have proved the quality of Southern States containers both in shipment and in storage.

Complete details are available on the facilities and containers of the Southern States plant. We shall be glad to provide any information that you request, without obligation.

SOUTHERN STATES CONTAINERS
DIVISION OF
REYNOLDS ALUMINUM SUPPLY COMPANY
2830 Fifth Avenue, North — SINCE 1914 — Birmingham, Alabama

YOU CAN'T USE FORMALDEHYDE UNTIL YOU GET IT—



When you order Allied Formaldehyde, you get high purity as a matter of course. But dependable supply is equally important — an interruption of your process may be as costly as impure materials.

Your supply lines are secure when you order from Allied, because Allied makes the basic raw material, methanol, at the same plant that produces nine different concentrations of Formaldehyde. These concentrations are always available for immediate shipment in tank cars and tank trucks from South Point, Ohio. Allied Formaldehyde is also available from conveniently located bulk terminals. Phone or write for price and delivery date — today.

Allied Chemical

Allied
You Can't Equalize ∧ Experience—Buy Allied All The Way

Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Solutions • Nitrogen Tetroxide • Fertilizers & Feed Supplements

Nitrogen Division • Department F3-7-3 • 40 Rector Street, New York 6, New York

Business Newsletter

CHEMICAL WEEK
December 27, 1958

Better-than-expected '58 earnings seem sure to emerge from year-end reviews.

The Manufacturing Chemists' Assn., out this week with its year-end chemical roundup, predicts sales will match—or even edge above—the all-time high of $23.418 billion set in '57.

December figures, says MCA, point to sales of between $23.3 billion and $23.7 billion for the full year (*see also Forecast '59, p. 37*). During the first three quarters, after-tax profits averaged 6.7% of sales, compared with 7.8% in '57. But in the third quarter the margin hit 7% and seemed headed upward.

MCA pegs '58 capital expenditures at $1.338 billion compared with $1.724 billion in '57. It also estimates that CPI research outlays—including those paid for with government funds—will total $560 million this year, may pass the $600 million mark by '60.

Another note of optimism comes from a boost in chemical dividends, as reported by the U.S. Dept. of Commerce last week.

Chemical companies' cash dividend payments in November rose to $24.3 million vs. $24.1 million in Nov. '57. Although this is a relatively small increase, it contrasts with an 8.2% dip in all-industries' cash dividend payments, which totaled $298.3 million last month, compared with $325 million in Nov. '57.

•

Latest financial reports bolster brightening earnings forecasts (*see also p. 23*).

Bristol-Myers President Frederic Schwartz told shareholders that '58 earnings will be up about 10% over those of '57. They will total $4.35-$4.40/share.

And Smith Kline & French President Walter Munns predicts '58 sales will rise about 8%, profits about 3%, over the '57 marks. Munns added, however, that approval last week of a plan to fund the company's retirement program will reduce earnings $900.000, or 17¢/share.

International Paper will reportedly post sales of well over $900 million in '58, less than the $940.4 million chalked up in '57. Fourth-quarter earnings will be at least $1.30/share, up from the $1.19/share earned in the third quarter but short of '57's fourth-quarter net of $1.93/-share.

Stauffer Chemical is expected to earn about $4/share vs. $3.71 last year. Sales have also been edging ahead in the final quarter, are

expected to top '57's $157-million mark. Rapidly growing agricultural chemical demand and Stauffer's plans to put several new plants onstream next year bolster prospects for '59.

American Viscose foresees continuing improvement in operating levels, which increased sharply this fall. Year-end figures, however, are expected to be under '57's, with earnings totaling about $1.40/share on sales of $215 million.

Glidden Chairman Dwight Joyce last week reported that net for the quarter ending November—first period of the company's current fiscal year—rose 47%, to $1.8 million. Net sales, however, dropped to $48.2 million, compared with $52.8 million in the same quarter last year. Reason: disposal of the Chemurgy Division earlier in '58.

•

SunOlin Chemical will proceed with plans for a $10-11-million urea plant at Sun Oil's Marcus Hook, Pa., refinery (*CW Business Newsletter, July 12*). Construction of the 73,000-ton/year, highly automated unit is expected to begin this spring.

SunOlin—jointly owned by Olin Mathieson and Sun Oil—has also contracted with Nason & Cullin, Inc. (Philadelphia), to build a $77,000 office building on the site.

•

Colgate-Palmolive and Wildroot are agreed on merger terms—"in principle." It now appears that the proposed acquisition will take place early in '59 (*CW Business Newsletter, Dec. 20*).

Wildroot stock will be exchanged for Colgate shares. The exact formula for this exchange of stock will depend largely on Wildroot's net assets, as determined in the Dec. 31 audit. Wildroot—whose Wildroot Cream Oil is said to be the largest-selling hair tonic in the U.S.—is expected to continue operations as a Colgate subsidiary.

•

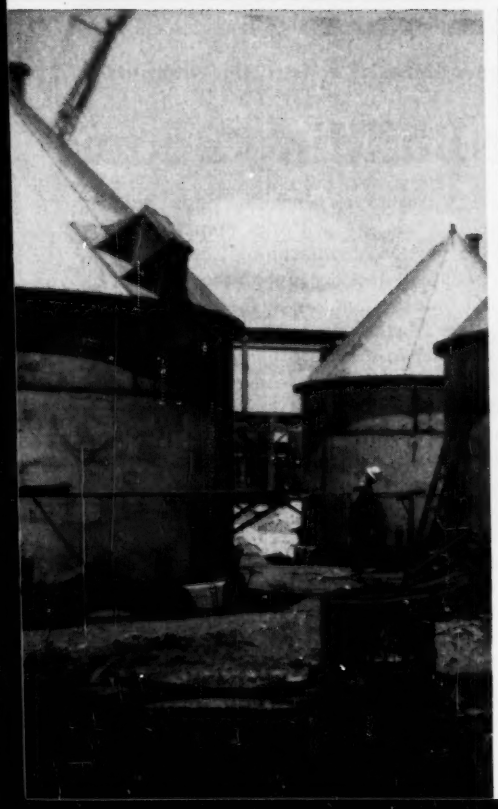
Out West, two salt companies are merging—right on the heels of the Federal Trade Commission's action against the year-old merger of Diamond Crystal and Jefferson Island salt companies (*CW Washington Newsletter, Dec. 20*).

But executives of Leslie Salt Co. (San Francisco) insist that their company's acquisition of Deseret Salt Co. (Salt Lake City) will actually increase competition in the Utah salt industry. Prior to the acquisition, Leslie was not a factor in the Salt Lake area. And Deseret—with a $1.5-million solar evaporation plant producing some 40,000 tons/year of industrial and commercial grades of salt—has been a not-too-close runnerup to Morton Salt Co. in Utah operations. Third-ranking producer there: Solar Salt Co., joint affiliate of Hooker and Pennsalt.

Specially Designed In Stainless

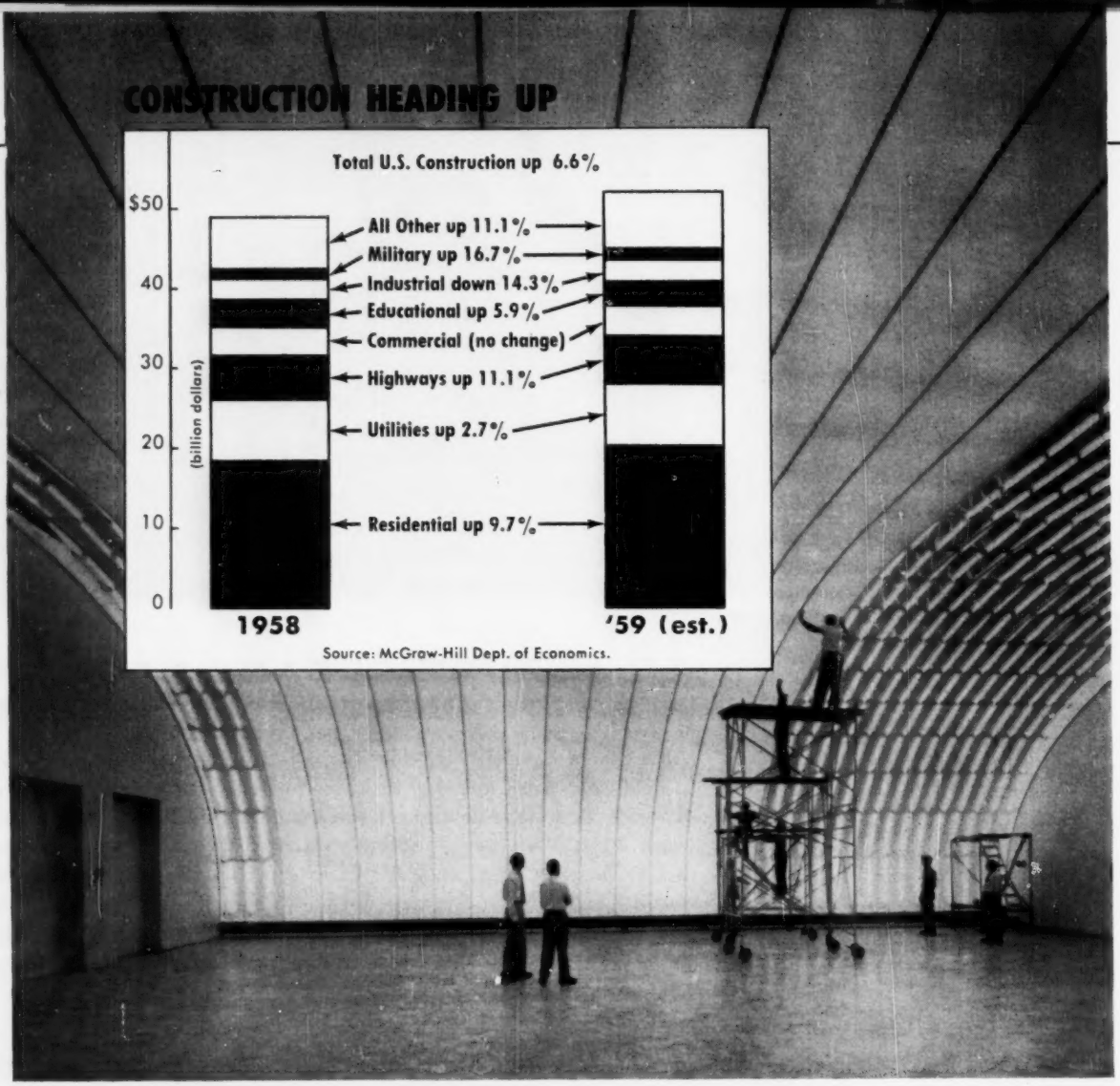
TO ASSURE CLEANLINESS OF POLYETHYLENE RESIN PELLETS

At a new automatic high-density polyethylene plant, keeping resin pellets clean until mixed with water to form a slurry for movement through lines found solution in these stainless steel tanks. Fabricated from Type 304 stainless at one Graver plant and field-erected by a Graver crew from another, these specially designed tanks were readily handled by Graver's nation-wide facilities. May we show you how Graver's century of experience can be extremely helpful when you face storage or processing problems requiring fabrication and field-erection in alloys?



GRAVER TANK & MFG. CO., INC.
EAST CHICAGO, IND.
Plants and Offices Across America

GRAVER



Vinyl sheeting in auto showroom highlights plastics' bid for bigger share of construction markets.

Cashing In on '59's All-Time Building Boom

One golden opportunity looming before chemical process companies this week: the chance to translate the 1959 building boom into even steeper increases in use of CPI products in construction. The boom is expected to set an all-time record, with dollar volume of construction work up nearly 7% and physical volume up 3% over '58 levels.

The degree of promise in the coming building splurge varies for the different segments of the CPI. Sales of old, established CPI building-use products—such as paints and finishes, cement and glass—probably will not rise more sharply than total construction activity.

But relatively newer CPI products—e.g., plastics, glass-fiber-reinforced panels, and aluminum—may be able to exceed the over-all rate of climb. Reason: end-use products made out of these materials are slowly but surely winning acceptance and approval among building code authorities, architects, and the people who buy and use the buildings.

Another Milestone: Example of the progress being made in getting the construction industry to include plastics in its planning and designing: both the International Conference of Building Officials and the Southern Building Code Congress recently adopted basic provisions of the "Model Chapter on Plastics for Inclusion in a Building Code"—which was prepared jointly by the Manufacturing Chemists' Assn. and The Society of the Plastics Industry, Inc.

Inclusion of the new plastics chapter in these two building codes opens the door for item-by-item approval of such plastics building applications as wall panels, glazing, roof panels, skylights, partitions, exterior veneers, awnings and outdoor displays.

Similarly, makers of aluminum products have been gradually achieving breakthroughs in the construction field, and are banking on a rapid increase in use of aluminum—particularly in housing—each year (*CW, Nov.*

22, p. 21). One notable development: prefabricated aluminum houses—with 1,400-3,000 lbs. of the metal per dwelling.

Paint Sales Up 5%: Industry spokesmen say total paint, varnish and lacquer sales next year will be up about 5% over '58 shipments—which are expected to amount to slightly more than the $1.6-billion aggregate for '57. Use of these products in new construction probably will increase in step with over-all construction spending, but will be affected by increasing use of plastic and aluminum materials that frequently go unpainted.

Cement is shooting for a big year in '59, topping this year's shipments of about 305 million bbls. by an additional 10 million or more. Highway construction—which is due to rise by as much as 12% to a '59 total of $6 billion—will be a principal factor here. Industry sources say no section of the country will have any cement shortage problem next year; and that with capacity mounting toward 400 million bbls./year, a slowdown in expansion appears to be in the cards.

Asphalt, asbestos and rubber products used in buildings and highways will be in increased demand. One question mark: the current controversy over standards for airfield runways.

Brighter Prospects for Plastics: Though makers and molders of plastics have been faced with a tough struggle to wrest builders away from conventional materials, there are numerous indications that plastic products have been winning favor where it counts most—with the builders' customers.

One way in which the plastics industry has been getting through to ultimate buyers is exemplified by Monsanto Chemical's all-plastic "House of the Future" at Disneyland, Los Angeles. Another: Eastman Chemical's five-room "House of Color," featuring plastics for home furnishings. And one international showing: the U.S. pavilion at the 1958 World's Fair in Brussels; its walls were largely of transparent vinyl panels made from resin produced by Union Carbide.

New Starter in Linear Lineup

High-density polyethylene producers, who face considerable overcapacity, at least for the present, last week got a big vote of confidence—but also a promise of still tougher competition. Both came in the form of Du Pont's terse report that it will build a linear polyethylene plant at its Sabine River site near Orange, Tex., due onstream in mid-'60.

Cost and capacity are Du Pont's secret. But there's one indication of the plant's size: it will provide jobs for about 50 new employees.

Patent Position May Count: Du Pont's interest in high-density polyethylene is no surprise. It received a composition-of-matter patent a year ago, and this may give the firm an edge in costs over other producers. Also, its Canadian subsidiary is now building a linear polyethylene plant at Sarnia, Ont.

Du Pont says the polyethylene go-ahead doesn't reflect a change in its interest in polypropylene, regarded as a rival for linear polyethylene in many applications. It is continuing its studies of the entire polyolefin field, and has been turning out experimental amounts of polypropylene.

Betting Ahead: Clearly, Du Pont is betting that a very different polyethylene situation will develop between now and 1960, when its high-density Alathon hits the market. Right now, polyethylene producers face serious overcapacity. Total '58 sales have been estimated at 750 million lbs. for all types, while announced capacity is some 1.3 billion lbs. (*CW Market Newsletter, Nov. 1*). But by '60, consumption is expected to hit the 1.1-billion-lbs./year mark. Planned capacity will then stand at 1.5 billion lbs., not counting Du Pont's.

The big question: Who will bear the brunt of the remaining overcapacity—the producers of high-pressure or low-pressure material?

Linear polyethylene finds that its greatest competition comes from materials like polypropylene and high-impact polystyrene, but in about 20% of applications it gets its hardest market battles from low-density material. The linear material's share of the total polyethylene market is expected to rise from 17% in '58 to 30% in '62.

LINEAR POLYETHYLENE: Will Ninth Plant Be The Last?

Plant capacities, million pounds/year, and year onstream

		'57	'58	'59	'60
1. Celanese	Houston, Tex.	40	—	—	—
2. Phillips	Houston, Tex.	75	—	—	—
3. Hercules	Parlin, N.J.	30	—	—	—
4. Grace	Baton Rouge, La.	—	50	—	—
5. Carbide	Institute, W. Va.	—	30	—	—
6. Carbide	Seadrift, Tex.	—	25	—	—
7. Koppers	Port Reading, N.J.	—	30	—	—
8. Dow	Bay City, Mich.	—	—	?	—
9. Du Pont	**Orange, Tex.**	**—**	**—**	**—**	**?**
		145	135	?	?

CW PHOTO—WAGG

Dow's Campbell (right) and analysts probe magnesium prospects.

Dow Polishes Its Prospects

More information on Dow Chemical's '59 plans and prospects was let out last week: spending for new plants will be down; but earnings—bolstered by giant strides in use of magnesium and plastic foams, and in the payoff on research programs—will be on the way up.

This picture of Dow came out in a report by Dow Vice-President Calvin Campbell to the Washington Society of Investment Analysts last week. Particularly bullish on magnesium, Campbell said the metal would soon be competitive with aluminum for use in automobiles.

Bigger Use in Autos: He added that magnesium, available from sea water, is more abundant than aluminum and that new casting methods have broadened its applications scope. Campbell predicted that "in the not-too-distant future" the auto industry will be taking the entire output of Dow's big magnesium plant at Freeport, Tex.

Campbell also singled out foams for construction materials as a potential top profit item in '59. Using cutaway models, he demonstrated how certain foams, sandwiched between layers of concrete, aluminum, corrugated paper, and the like, will be used as insulated, inexpensive walls for industrial buildings and houses.

Turning to capital spending plans, Campbell pegged outlays for new plants and equipment in the 12 months ending next May 31 at $70 million—well under last year's $185 million.

Winding Up Expansion: The big decline, says Campbell, isn't prompted by dim earnings prospects. Rather, it means that a record expansion program is now being completed. In the past 10 years, Campbell pointed out, Dow's plant investment has increased 400%, while sales and profits have increased only 300%. The gap is evidence of capacity that may pay off next year, but minimizes the need for new expansions now.

To encourage U.S. industry to spend more for expansion, Campbell suggested that the existing small-business law be extended to let all companies write off depreciation on any schedule they wish. This, said Campbell, would offset effects of the declining balance system, which often crimps expansion plans.

Advisors to Embassies

Two chemists and a chemical engineer are among the seven "science attaches" appointed last week for the U.S. State Dept.'s revived program to add scientific advisors to U.S. embassy staffs abroad.

The program was first tried during 1951-55. It was revived this year after Congress demanded something be done to spur the U.S. technical information gathering programs. Head man is Wallace Brode, science advisor to Secretary of State Dulles. Brode, too, is a chemist; he formerly was a professor at Ohio State, now is associate director of the National Bureau of Standards.

To Paris go Edward Piret and his deputy, Edward H. Cox. Piret is professor of chemical engineering at the University of Minnesota, has been active in the international relations committee of the Engineers Joint Council. Cox is an organic chemist.

To Bonn goes Ludwig Audrieth, inorganic chemist, teacher (University of Illinois), researcher (codiscoverer of Sucaryl), author.

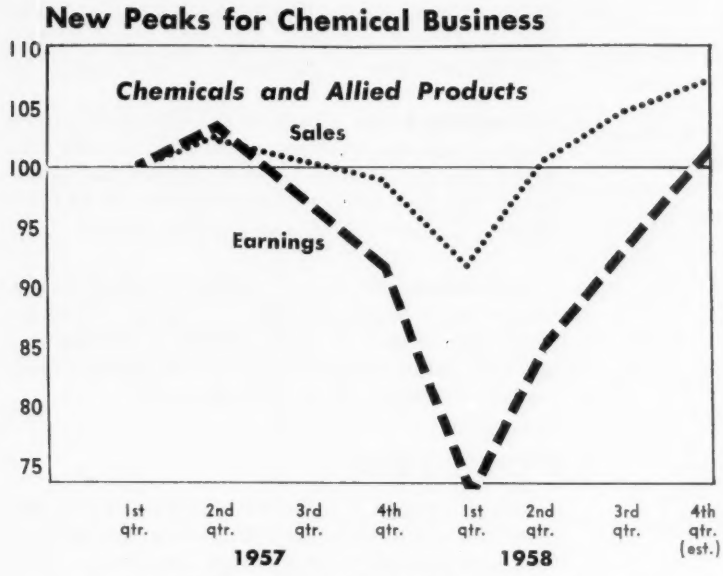
Four other scientists have been assigned to London, Rome, Stockholm and Tokyo. Posts in the U.S.S.R., India and South America are expected to be filled before the end of '59.

New Color Law?

Pressure was building up last week for a new federal law on synthetic food-coloring products following the Supreme Court's ruling against continued use of Red 32 (*CW Business Newsletter, Dec. 20*).

Under the present law, the court decided, if a coal-tar color is not harmless it cannot be certified by the Food & Drug Administration; and if it is not certified it cannot be used.

Industry support of a suggestion that Congress re-examine the food color situation (*CW, Dec. 6, p. 40*) is gaining. FDA reportedly is endorsing a proposal that Congress permit temporary use of newly developed Red 2—said to be only one-twenty-fifth as toxic as Red 32—for coloring orange skins after the current permit on Red 32 expires next March 1. Meanwhile, chemical researchers are testing other compounds that might fill the bill.



Based on FTC-SEC Quarterly Financial Report; 1st qtr. '57 = 100

Earnings Ride the Upswing

Chemical companies are ending the year with sales and earnings riding an exhilarating upswing, the very converse of the pattern at the end of '57 and the start of '58. That, at least, is the picture presented by early reports.

Corporate sales of chemical products actually hit an all-time high during the third quarter, according to a report by the Securities & Exchange Commission and the Federal Trade Commission. Moreover, judging from latest estimates by leading companies, sales will move on to an even higher peak this fourth quarter (*chart, above*). Earnings, too, are pulling out of the nose dive that started some 16 months ago.

Union Carbide has upped its earlier prediction of $3.80/share for '58 earnings. It now anticipates $4/share on sales of about $1.3 billion. Though sales and profits are still under '57 levels, the company reports, they have improved steadily from recession lows last spring.

Carbide's chemicals and plastics divisions are reportedly making a better showing than last year, are the major factors behind the company's profit gains. The Electro Metallurgical division is operating at less than full capacity, though at a higher level than earlier this year.

Phosphorus Is Leading: Hooker President T. E. Moffitt reports sales for the 12 months ended Nov. 30 are off about 2.5%, with earnings down about 5.3% to $10.4 million. But Moffitt reveals that October sales were at a record high and November volumes were better than last year. He also reports that profit margins are considerably improved. Moffitt said gains were posted in all phases of Hooker's operations, with the phosphorus division chalking up the biggest sales boost.

And Pfizer President John McKeen also had good news for shareholders. McKeen said he is "hopeful" that '58 sales will reach $220 million, up 7% over '57. He added that earnings should be about $4.50/share, compared with $4.22/share last year.

Soft Spots Foreseen: However, the Pfizer chief executive warned that other factors could complicate earnings in '59. He cited weakening prices for vitamins and narrow-spectrum antibiotics due to increased foreign competition, some softening in broad-spectrum antibiotic prices, and increasing wage, transportation and construction costs.

Harshaw Chemical reports earnings for the 12 months ended Sept. 30 totaled $1.8 million, compared with $2.4 million in '57. Sales declined to $60.1 million from $66.2 million a year earlier.

But, in a letter to shareholders, Harshaw Vice-President A. D. Perry said sales for October and November are "encouraging." Harshaw Chairman W. J. Harshaw and President C. S. Parke also emphasized that Harshaw's products "have been in greater demand in the past few months."

For the fiscal year ended Oct. 31, Texize Chemicals (Greenville, S.C.)—maker of household and industrial chemical specialties—posted a whopping 104% boost in sales. Total volume hit $10.2 million, compared with $5 million in '57. And at the company's annual meeting earlier this month, shareholders underlined Texize's prosperity by approving a 4-for-1 stock split and a plan to add six new members to its board of directors.

Koppers Co. President Fred Foy last week told the Pittsburgh Society of Financial Analysts that '58 sales will hit $225 million—well below the $326 million chalked up last year—with after-tax net at about $2/share, compared with $3.68/share in '57.

But Foy predicted a 10% or more increase in '59 earnings. He noted that a substantial pickup in business will show up in fourth-quarter reports, will probably continue on into '59.

Potential in Packaging

Borne Chemical Co. (Elizabeth, N.J.) has enraptured Wall Streeters and food packagers with news of a process to hermetically seal plastic containers.

How the process works wasn't revealed. But company officers, queried by *CW*, are confident it will find extensive use in the food packaging industry—particularly in sealing containers for dairy items.

Borne, a producer of industrial chemicals and petroleum specialties, got this process earlier this month when it acquired Plastomatic Corp. (Malvern, Pa.) by a stock exchange.

Reaction was fast and enthusiastic on Wall Street. Borne stock, selling on the American Exchange for about $20/share two weeks ago, immediately leaped 10-12 points, last week was quoted at $34/share.

During '57 Borne posted $1.8 million in sales but suffered a net loss of $130,000. Its '56 after-tax net: $194,792 on sales of $2.2 million.

COMPANIES

L.O.F. Glass Fibers Co. shareholders (including 50%-owner Libbey-Owens-Ford Glass Co.) have voted to sell its assets and business to Johns-Manville Corp. on the basis of 2½ L.O.F. Glass Fibers shares for each share of J-M common. The company will actually be purchased by Johns-Manville Fiber Glass, Inc., which will be incorporated in Delaware as a wholly owned subsidiary of Johns-Manville. L.O.F. Glass Fibers' sales last year were $23.3 million; profits, $1.1 million. For the first nine months of '58, net rose to $1.1 million, compared with $951,100 in sales for the '57 period.

•

H. K. Porter Co. (Pittsburgh) has absorbed Thermoid Co., producer of industrial and automotive rubber and friction products. Porter's new Thermoid Division will manufacture and market all products formerly made by Thermoid and by Porter's Quaker Rubber Division. Former Thermoid President Warren Hill heads the new division.

•

Chemstrand Corp. has paid its first dividend—totaling $5 million—to its two shareowners, American Viscose and Monsanto. Chemstrand also is repaying $5 million on notes held by the parent companies. The company's nine-month profits: $11.7 million, on sales of $119.3 million.

•

St. Regis Paper Co. plans to acquire F. J. Kress Box Co. through a stock exchange, if the Securities & Exchange Commission approves its proposed issue of 288,450 common shares. St. Regis would offer 2¼ shares for each share of Kress. It reportedly holds options on 80.6% of Kress' outstanding shares—enough to give it control.

EXPANSION

Paper: Continental Can Co. will build a $45-million mill near Augusta, Ga., on a 2,600-acre site. Output: 350 tons/day of bleached sulfate paperboard and paper.

•

Petroleum Products: Ashland Oil & Refining Co. will broaden its line of aliphatic solvents with a new plant at its Leach refinery, near Catlettsburg, Ky. It will also produce specialty jet fuels. Building starts Jan. 15, '59, is slated for completion by early summer.

Standard Oil Co. of California (San Francisco) plans a $2-million modernization and reactivation program for its 20-year-old hydrogenation plant at the Richmond refinery. Work is to start immediately, is expected to be completed next year.

•

Salt: Morton Salt has won tentative permission from Ohio's Natural Resources Dept. to tap a 5,000-acre salt bed under Lake Erie near Painesville. Morton has already sunk a 2,000-ft. shaft on nearby land, now wants to tunnel under a state park to reach the bed. If Gov. William O'Neill approves, the state would receive $10,000/year, plus 5¢/ton royalty.

•

Aluminum: Kaiser Aluminum and Chemical Corp. is planning a $1-million expansion of its Chalmette, La., works. Included: a 50% increase in billet casting capacity, two new furnaces, other facilities to add 7.5 million lbs./month to the plant's casting capacity.

•

Intermediates: Reichhold Chemicals (Canada) Ltd. is engineering plans for "sizable" phenol and formaldehyde plants at its Port Moody (British Columbia) site, and for a phthalic anhydride plant at St. Therese, Que. Part of the output will be for captive use.

FOREIGN

Sales/Germany: Farbenfabriken Bayer, one of the companies split off from the I. G. Farben trust, predicts '58 sales totals will hit $480 million. The total is 7-8% higher than last year, is about on a par with over-all German chemical industry sales growth this year. About 42% of Bayer's total '58 production was shunted into exports. The company spent $60 million on expansions, $12.5 million on acquisitions.

Chemische Werke Huels, another Farben splinter, expects '58 sales totals will show a 9.6% rise over '57's $124 million. Exports will take up 35% of total production. During the first 10 months of '58, Huels invested $15.5 million.

•

Petrochemicals/Italy: An $18-million petrochemicals complex is slated for Ragusa, Sicily; onstream date is late '59. Builder is S.p.A. A.B.C.D. (asphalt, bitumen, cement and derivatives). Crude feedstock will come from the nearby Gulf Italia oil fields.

•

Chemicals/Egypt: The Misr Chemical Products Co. (Cairo) has awarded Cronzio de Nora (Milan) a $5.7-million construction contract for the first Arabian-area caustic-chlorine plant. Unit is due onstream in June '60 with a capacity of 20,000 tons/year—only 5,000 tons short of Egypt's present needs.

Backed by a $5-million, seven-year loan from the U.S. Export-Import Bank, the privately owned Societe Egyptienne des Engrais et Produits Chimiques is doubling fertilizer capacity to 375,000 tons/year. Calcium nitrate output is slated to double to 220,000 tons/year early next year. And the company plans to produce Egypt's first ammonium sulfate in '59, using sulfur recently discovered on the coast of the Red Sea.

•

Rayon/India: South India Viscose Ltd. and Italviscosa Eastern Trading Co. (subsidiary of Italy's Snia Viscosa) will build a $20-million rayon complex near Coimbatore, India, by '60. Daily capacities: rayon yarn, 10 tons; sulfuric acid, 35 tons; carbon bisulfide, 7.5 tons.

Washington
Newsletter

CHEMICAL WEEK
December 27, 1958

East-West trade controls came back into the news when Commerce Dept. last week declared its second revision of the so-called positive list in less than two months. Changes made Nov. 10 removed a net total of over 200 items, including some chemicals—thus lifting some of the procedural restrictions on getting export licenses approved for shipments to Communist countries, as well as to friendly nations to which the list applies directly.

Chemical and pharmaceutical manufacturing and processing equipment was added to the more restrictive list last week. The chemical industry has for months been split over East-West trade issues: some spokesmen look favorably at the prospect of new markets behind the Iron Curtain, while others—led by the Manufacturing Chemists' Assn.—have stood strong against trading away any U.S. technical chemical know-how to the Soviets.

The addition of chemical machinery, plus certain metalworking machines, to the list indicates that the MCA view is prevailing at Commerce Dept.

All this takes on added importance with the news that the U.S.S.R. trade expert, Anastas Mikoyan, will visit the U.S. in January. Washington has not yet answered Soviet Premier Khrushchev's latest proposals for expanding Soviet-U.S. trade, after turning them down last spring. Mikoyan, who reportedly has the Berlin crisis first on his mind, undoubtedly will also talk trade. Government officials' flat statements that the U.S. has not changed its fundamental trade policy are thus even more significant.

•

Domestic minerals producers will keep pushing for more aid in the new Congress, but won't get anywhere near the incentives they would like. Sen. Mike Mansfield (D., Mont.), for example, plans to introduce a bill to require the Office of Defense and Civilian Mobilization to upgrade manganese stocks in his state. The agency already has set up a program of beneficiating some of its ore stocks.

Mining-state legislators also will push for other federal incentives for domestic producers, bring pressure on executive trade agencies to use new restrictions in the trade laws. But they won't revive stockpiling or broad domestic commodity subsidies. Their best hope is for help on an item-by-item basis.

•

Commerce Dept. plans to launch an important new project next year that will give chemical producers a better line on what they can expect from industry sales and inventories.

The department plans to issue quarterly a survey of producers' intentions concerning inventories and sales comparable to the successful

surveys now made of consumers' intentions to buy, manufacturers' capital spending anticipations, and employer hiring plans.

The new surveys will encompass all areas of manufacturing, with 1,500 manufacturers participating. Breakdowns will be available for chemical processors and all other major industries.

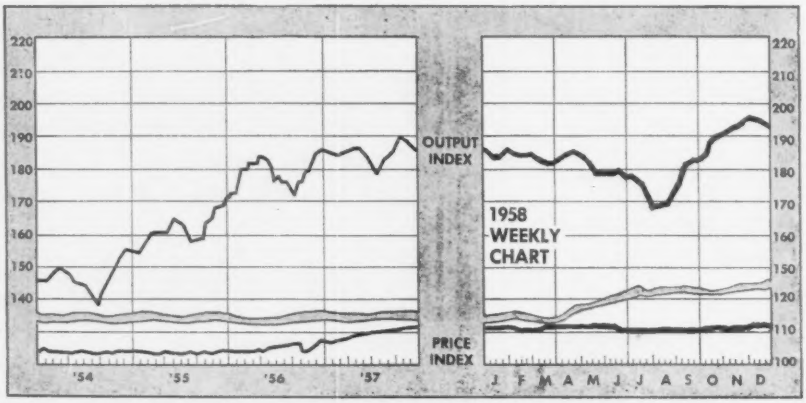
The department has already made two dry-runs and reports notable success with the inventory outlook but less so with sales anticipations, indicating more development is needed here. The new survey will offer a much-needed tool for better short-term forecasting of economic trends.

•

Federal Judge David Pine's turndown of the move by I.G. Farben liquidators to enter the government-Interhandel dispute over General Aniline & Film Corp. opens the way again for settlement talks.

Though the liquidators say they will appeal Pine's ruling, government sources feel they are legally free to resume settlement talks with Interhandel—if they want to.

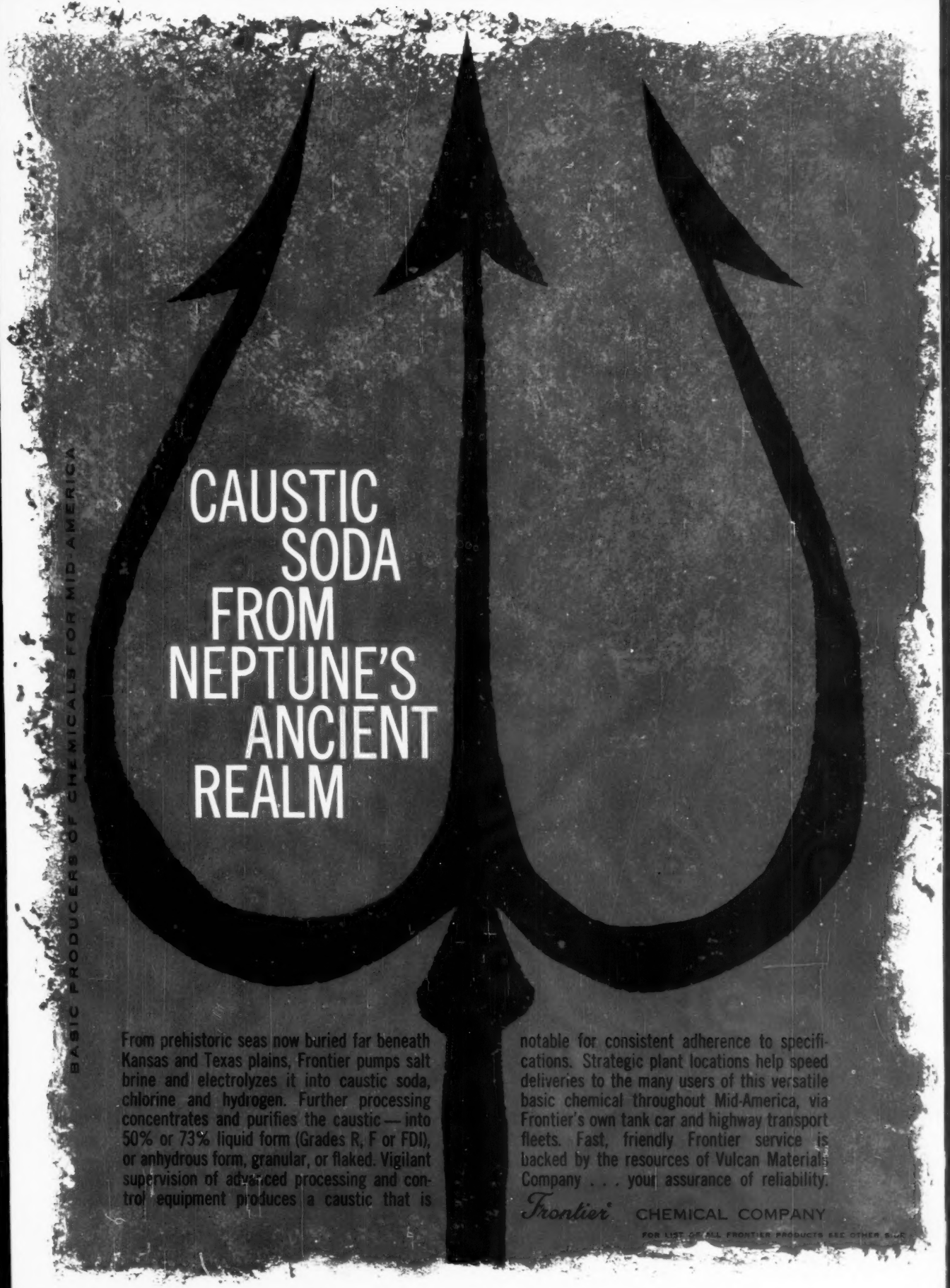
No decision has yet been made on whether to sit down again with Interhandel to work on a settlement. Meanwhile, government lawyers are going ahead with the lengthy preparations for trial of Interhandel's suit.



Business Indicators

WEEKLY	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-49=100)	192.0	193.2	186.0
Chemical Week wholesale price index (1947=100)	111.8	112.0	111.3
Stock price index of 11 chemical companies (Standard & Poor's Corp.)	48.00	47.70	38.92
Steel ingot (thousand tons)	2,036	2,015	1,742
Electric power (million kilowatt-hours)	13,450	13,017	12,570
Crude oil and condensate (daily av., thousand bbls.)	7,096	7,067	6,884

MONTHLY Wholesale Prices	Latest Month	Preceding Month	Year Ago
All commodities (other than farm and foods)	126.8	126.4	125.9
Chemicals and allied products	110.2	110.2	110.3
Industrial chemicals	123.6	123.6	123.6
Paint and paint materials	120.7	120.8	118.6
Drugs, pharmaceuticals and cosmetics	93.2	93.9	93.4
Fats and oils (inedible)	64.8	62.6	65.2
Fertilizer and materials	105.2	106.3	107.7


BASIC PRODUCERS OF CHEMICALS FOR MID AMERICA
CAUSTIC SODA FROM NEPTUNE'S ANCIENT REALM
From prehistoric seas now buried far beneath Kansas and Texas plains, Frontier pumps salt brine and electrolyzes it into caustic soda, chlorine and hydrogen. Further processing concentrates and purifies the caustic — into 50% or 73% liquid form (Grades R, F or FDI), or anhydrous form, granular, or flaked. Vigilant supervision of advanced processing and control equipment produces a caustic that is notable for consistent adherence to specifications. Strategic plant locations help speed deliveries to the many users of this versatile basic chemical throughout Mid-America, via Frontier's own tank car and highway transport fleets. Fast, friendly Frontier service is backed by the resources of Vulcan Materials Company . . . your assurance of reliability.
Frontier CHEMICAL COMPANY
FOR LIST OF ALL FRONTIER PRODUCTS SEE OTHER SIDE

FRONTIER

Mid-America's
Basic Producer of

Caustic Soda

Muriatic Acid

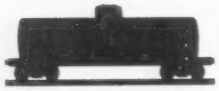
Chlorine

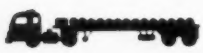
Hydrogen Chloride
(Anhydrous)

Chlorinated Solvents
and Grain Fumigants

Benzene Hexachloride
(14 and 36 gamma)

Fine Grain Salt





Perhaps you can profit from Frontier's strategic Mid-America locations — so much closer in time and distance to many users. You are sure to gain in other ways. You benefit from rigid quality control — the result of production from Frontier-controlled basic materials in one of the industry's newest and most advanced plants, and contamination-free shipment in Frontier's own new tank cars, highway tank-trailers, or standard containers.
You can build mixed lot shipments from Frontier's wide and growing line of products. Or you can locate your own new plant next door to ours, for easy "over-the-fence" deliveries. You'll like Frontier's sincere personal interest in your needs — our prompt and friendly service. We will appreciate your inquiry.

Frontier® CHEMICAL COMPANY
DIVISION OF VULCAN MATERIALS COMPANY
EXECUTIVE OFFICES: MUNICIPAL AIRPORT, WICHITA, KANSAS

THIS IS VULCAN MATERIALS COMPANY:
Birmingham Slag Division, Brooks Sand & Gravel Division, Chattanooga Rock Products Division, Concrete Pipe Division, Consumers Division, Lambert Division, Montgomery-Roquemore Gravel Division, Stockbridge Stone Company, Vulcan Detinning Division, Frontier Chemical Company, Teckote Corporation, Wesco Contracting Company.

CW PHOTO—LIONEL CRAWFORD

Brooklyn Poly's Herman Mark tells Russians of U.S. plastics work.

Soviets Listen and Learn

Last week, eight Russian scientists and managers representing Soviet chemical process industries wound up their one-month scientific Cook's tour of the U.S. Their last stop, at Brooklyn's Polytechnic Institute, gave CW editors a chance to get their reaction to the tour, learn more about Russia's current chemical industry.

Plastics experts all, the Russian scientists discussed latest plastics developments—Soviet Russia's and those of the U.S.—with Herman Mark and others at the Brooklyn school's well-known Polymer Research Institute.

George Ouvarov, vice-president of the Government Committee of the Council of Ministers of the U.S.S.R. in Matters of Chemistry, headed the delegation. He told *CW:* "Our main polymer interests in the U.S.S.R. today are researching polyethylene and polypropylene; both, we think, have a great future. So far, though, production of these two polymers has been small, but pilot-plant production (low-pressure in the polyethylene) indicates we will be able to have large full-scale plants onstream by mid-1960. We've been doing quite well with the production of other polymers, including polycarbonates and, of course, are always trying to improve them."

A recent goal announced by the Soviet Union is to have 250 plastics (and allied chemicals) plants in operation by '65.

Ouvarov said that "very little real research goes on in the plant," is done instead in two types of research institutes: academic, handling basic research; and industrial, doing applied research and developmental work. "Inorganic research is not being brushed aside," he added. "Major work is being done and should continue to be done in the fields of insecticides and mineral fertilizers."

Sent to Listen: Others in the visiting group were less expressive. The experts, each versed in a different aspect of plastics technology, were sent here primarily to listen, to learn all they could about U.S. technology. Spokesman Ouvarov noted "they were all hand-picked through an extensive program of selection running to the far reaches of the U.S.S.R." The group included:

IT WAS A BETTER MOUSETRAP, BUT:

Once (and not too long ago), there was a better product... lab tests proved it... the sales force sold it ... the advertising moved it.

But the customers didn't come back. The product was mis-odored.

No matter how efficient your product, if the odor overwhelms or isn't quite right, it can hit your customer wrong. And next time he'll unwittingly give up some quality for a better odor image.

An **ALAMASK®** reodorant chemical can solve the problem by directing the odor toward greater customer appeal.

Manufacturers of paints, waxes, cleansers, textile finishes, solvents, films, etc., etc., have *proven in sales and repeat sales* the real value of Alamask-ing their products.

Write or call today for Alamask samples and technical data to:

Rhodia INC.

60 East 56th Street • New York 22, N.Y.
(Phone: PLaza 3-4850)
Representatives in:
Philadelphia • Cincinnati • Chicago • Denver
Los Angeles • Montreal • Mexico City

when it comes to lubricating timely equipment... HARCHEM'S 2-SL is the base

It would take an exceptional synthetic lubricant to meet the operational requirements of a watch and a jet. Yet a lubricant that can keep them both running; keep them from wearing and maintain dependability, can be made from Harchem's 2-SL.

Harchem's 2-SL meets all the requirements for a synthetic lubricant base which can pass specifications such as Mil-L-7808. Wide temperature range viscosity stability; good susceptibility to oxidation inhibitors; minimum corrosivity; high load carrying ability; all are inherent in 2-SL.

Whether you manufacture for the military or want to make a top quality, competitive synthetic lubricant, it will pay you to investigate Harchem's 2-SL—the base on which better lubricants can be made.

For basic information to aid in preliminary investigation of Harchem's 2-SL, write for Product Bulletin H-54.00.

HARCHEM DIVISION

WALLACE & TIERNAN INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
IN CANADA: W. C. HARDESTY CO. OF CANADA, LTD., TORONTO

PRESSURE SENSITIVE INSTRUMENTS

Accuracy to 1 part in 1,000
Sensitivity to 1 part in 10,000
Ranges from absolute zero to 500 psig

For measuring absolute, differential, vacuum or gage pressure.

For Instrument data and catalog write Dept. A-120.24.

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET BELLEVILLE 9, NEW JERSEY

RESEARCH

Nicholas Egorov, Director of the Leningrad Polymerization Institute; Anatol Tikhomirov, head of the International Dept. of the State Committee for the Chemical Industry of the Council of Ministers of the U.S.S.R.; Anatol Sheryshev, chief engineer at the Giproplast Institute; Eugene Isakov, director of a plastics factory in Sverellovsk; Joseph Mamedeliev, professor of petroleum chemistry at the University of Baku, president of the Academy of Sciences of the Azerbaidzhan S.S.R., and a member of the Supreme Soviet of the U.S.S.R.; Ivan Mikheyev, chief engineer at the Carbolit Plastics factory; and Victor Kabanov, interpreter and a graduate chemist now teaching at the University of Moscow.

Most of the material they were exposed to at the Polytechnic Institute was of a highly technical nature, including polymerization techniques, problems in stereopolymer development, new developments in the use of light to induce polymerization, and developments in the field of X-ray crystallography.

But the greatest interest was shown in two new Du Pont fiber developments. One is called polyvinylene (key ingredients: PVA and hot sulfuric acid); it's noteworthy because it will withstand temperatures up to 600 F, will not burn or melt, and is a semiconductor. The other, developed from Orlon processed with hot nitrogen gas, is said to have almost the same characteristics.

Social Ice Broken Early: The Soviets, who started to make voluminous notes at the outset, continued to do so throughout the day at the institute. But after a 10 o'clock cigar, an 11 o'clock demonstration of the quality of U.S. plastics (*see picture, p. 29*) and a cold buffet lunch with plenty of vodka, the Soviets relaxed their business-only attitude.

Lunch conversations (about half of the visitors spoke in English, the rest relied on interpreters) ran the gamut of subjects that turn up at any cocktail party. But most frequently, the Russians were swapping experiences with the Americans, many of whom had recently been in the U.S.S.R. (*CW, July 12, p. 21*). The Russians were most impressed with U.S. life in general, gratefully accepted U.S. praise of Russian dancers who visited here recently.

The Russians left the impression that they were pleased with the outcome of the trip. Ouvarov said he hoped "more exchanges will be arranged," thinks they are "profitable to both countries—may lead to a better understanding in other matters."

EXPANSION

• Lakeside Laboratories Inc. (Milwaukee) will add three new laboratories to its pharmacology division.

• The U.S. Dept. of Agriculture dedicated its new Fruit and Vegetables Laboratory at Winter Haven, Fla. The lab will emphasize chemical research, investigate taste differences and changes in fruit and vegetables during storage, among other projects.

• General Electric Co. (Schenectady, N.Y.) has dedicated its new multimillion-dollar Lamp Research Center at Nela Park, O. Studies will include chemical syntheses of possible new sources of light.

PRODUCTS

Waterproofer: Aceto Chemical Co., Inc. (Flushing, N.Y.), offers a new odorless grade of aluminum formate powder for waterproofing textiles and paper and for use as a dye mordant.

•

Liquid Oxygen Sealant: Drilube Co. (Glendale, Calif.) has developed a line of impact-insensitive inorganic lubricants and thread sealants useful in systems employing liquid oxygen.

•

Superpure Chromium: Iochrome, a superpure chromium having no more than 10 ppm. of any one gaseous or metallic impurity, is available from Chromalloy Corp. (White Plains, N.Y.). Suggested uses: as an alloying element for nuclear reactor components, gas turbines, and jet engine components.

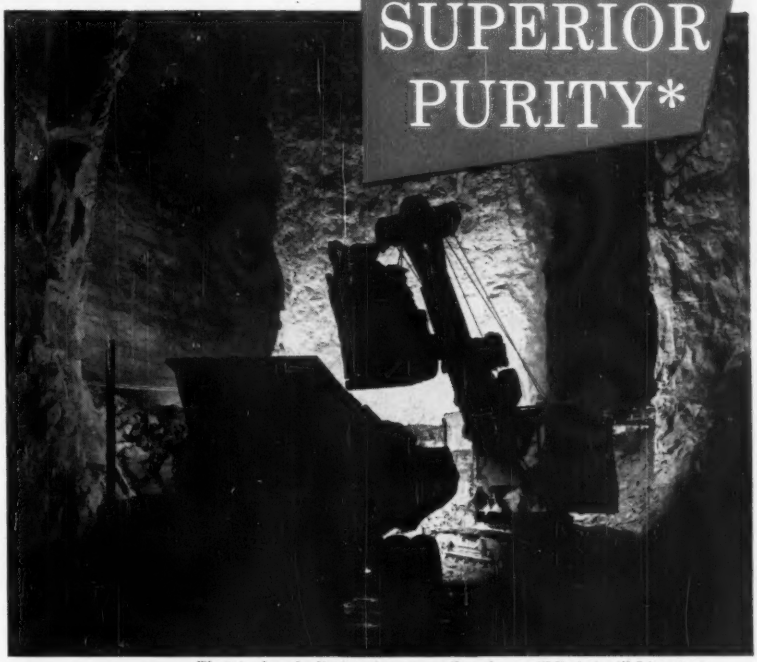
•

Epoxy Adds: Allied Chemical's National Aniline Division (New York) is offering three new dicarboxylic anhydride hardeners for epoxy resins. The trio: dodecenyl succinic, hexahydrophthalic anhydrides and Allied's tradenamed methyl Nadic are said to contribute longer pot-life and low volatility, provide benefits in laminating compositions, potting, encapsulating and impregnating electrical components.

From this vast storehouse

you can always count on...

LIME of SUPERIOR PURITY*



Electric shovels dig into immense piles of pure "Mississippi" Limestone. Supply is practically inexhaustible.

**Mississippi Lime Company's entire limestone deposits have a natural purity and uniformity unequalled in such quantity anywhere. The entire formation tests 99% pure calcium carbonate.*

Uniform quality, shipment after shipment, is the major reason why more and more users are specifying "Mississippi." By standardizing on Mississippi products of superior quality, you eliminate uncertainty in lime operations and open the way to improved processes.

If you have use for lime for any purpose, we believe it will be to your advantage to get in touch with us. Our skilled technicians will consider it a privilege to consult with your technical staff on possible applications or help in the solution of any problem.

Any quantity of lime ready any time for immediate shipment anywhere.
BY RAIL . . . BY BARGE . . . BY TRUCK

MISSISSIPPI LIME COMPANY

ALTON, ILLINOIS

Kay-Fries

ORGANIC

inter-mediates

MALONALDEHYDE
(Diacetals)

ORTHO ESTERS

CYANOACETATES

MALONATES

CHLOROACETATES
(Mono and Di)

Write for our catalog or tell us what you need.

KAY-FRIES CHEMICALS, INC.

180 Madison Ave., New York 16, N. Y., MUrray Hill 6-0661

KAY - FRIES
KF
CHEMICALS, INC.

MIKE SHEA

IMC's Kennard, Moyers, White, Cascino ready training program.

Schooling for a 'Soft Sell'

In a few weeks, two specially trained task forces of International Minerals & Chemical Co. salesmen will invade the fertilizer hinterlands from company headquarters at Skokie, Ill. Their mission: to give a series of nine sales-training sessions for over 350 representatives of some 160 fertilizer manufacturers.

It's part of a brand-new phase in IMC's "Full Orbit" sales-service drive launched earlier this year (*CW, June 14, p. 57*). The new stage represents a sizable expansion of past activity and goes far beyond the initial major effort — training salesmen to become customer service counselors in six basic marketing areas.

Success of the first program and a market research study indicated a second phase would be productive. Marketing Vice-President Anthony Cascino estimates that the initial program reached more than 400 fertilizer manufacturers and produced about 8,000 requests for its series of six "how-to-do-it" manuals on fertilizer distribution. The second phase aims at winning more sales volume as the new fertilizer selling season gets under way. Besides the task forces, the new program will include:

• Merchandising answer book: Salesmen will be equipped with a special book that contains answers to hundreds of specific questions about fertilizer marketing that customers are likely to pose.

• Action kits. Tailored to specific requests of individual manufacturers, the kits offer do-it-yourself information on such subjects as arranging meetings and salesmen recruitment programs.

• Customer advisory panel. IMC will establish a rotating panel of about 12 local fertilizer manufacturers to advise the firm on local field conditions and the sales and service needs of mixers.

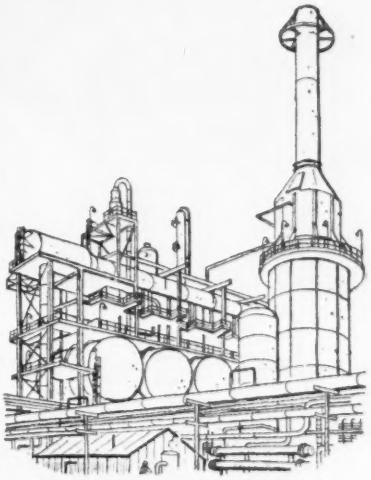
• New "how-to-do-it" credit manuals. Brochures offer suggestions and advice on using credit effectively, insurance and safety, how to handle records, how to write effective collection letters, etc.

Weak Link: Fertilizer marketing at all distribution levels has long been recognized as the weak link in the industry. IMC will attempt to help remedy this by increasing the effectiveness of fertilizer salesmen. The company's task forces received a short but intensive course in sales training fundamentals. They will instruct at special seminars at Birmingham, Ala., Shreveport, La., Tampa, Fla., Columbia, S.C., Baltimore, Md.

FORESIGHT BY
Firestone

For process design, engineering, procurement and construction of its new 40,000 TPA Butadiene plant at Orange, Texas, Firestone Tire and Rubber Company chose CATALYTIC.

Construction started—June 26, 1956
Plant was Completed—March 15, 1957
(less than 9 months in the field)



PERFORMANCE BY
CATALYTIC

This outstanding performance demonstrates the worth of undivided responsibility which has enabled CATALYTIC to complete this multi-million dollar facility...on time and on budget.

CATALYTIC
CONSTRUCTION
COMPANY

Philadelphia 2, Pennsylvania
Toledo, Ohio
In Canada: Catalytic Construction of Canada, Limited; Sarnia, Ontario; Toronto, Ontario; Montreal, Quebec

Jet take-off in sales!

with A-C® Polyethylene

Up! Up! Up! The sales curves for products in which A-C Polyethylene is used are soaring upward with jet-like speed! Small wonder, because A-C POLYETHYLENE improves so many different products in so many ways!

How can *you* use A-C Polyethylene? To speed up production of plastic housewares or toys while preserving stress crack protection. To make tougher, glossier polishes. To give increased grease resistance for wax food wrapping. To improve textile finishes, dairy cartons, corrugated cartons and many other products. A-C Polyethylene is also used to upgrade paints and inks. In all these applications A-C Polyethylene is leading the way to greater production savings, improved products, and increased profits.

It's more than likely A-C Polyethylene can help you too! Try it! Write today for further information.

Allied Chemical

SEMET-SOLVAY PETROCHEMICAL DIVISION
Room 529-AB, 40 Rector Street, New York 6, New York
National Distribution • Warehousing in Principal Cities

SALES

(two meetings), Cincinnati, O., Des Moines, Ia., and at Skokie. Students at the meetings — largely sales managers and other executives of smaller fertilizer manufacturers — are learning how to set up and execute a sales training program of their own.

While regular IMC training teaches a salesman how to plan a training program for customers, the new merchandising answer book contains detailed answers to specific questions, such as organization of selling time and how to sell quality rather than price. The book contains over 300 pages and will be expanded as new questions arise.

Panel Help: The customer advisory panels will be set up early next year. IMC proposes to bring representative customers in for a series of regularly scheduled meetings. Composition of the panels will change from time to time. Subjects tentatively on the '59 agenda: how products and services can be made more profitable for customers; future role of premium and liquid fertilizers; suggestions for product improvements, research and development; future role of government in agriculture; methods of servicing dealers and farmers.

IMC will round out these activities with its action kits and new booklets.

"Action kits" supply "how-to-do-it" information on specific customer problems. For example, when a salesman gets a request on handling farmer meetings, he will fill out an order blank in the merchandising book and forward the blank to headquarters. The headquarters staff will mail out a kit that contains suggestions on room decorations, typical direct-mail pieces, newspaper ads, room layouts, door prizes, meeting programs, etc.

The credit manual, says Cascino, should fill a long-standing need of smaller producers. Agricultural chemical credit has long been one of the industry's biggest problems.

Both stages of IMC's "Full Orbit" program are aimed at sales in the coming season. Hence, the ultimate measure of results — extra sales and added profits — won't be known until late summer.

Cascino believes that successful selling always entails discovery of "a thing" — the something extra that motivates a customer to buy. And he's certain that IMC's "Full Orbit" pinpoints it.

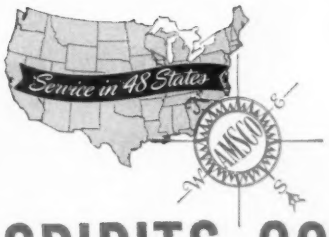
AMSCO IS FIRST

..... in solvent research

(no wonder it's first in sales)

Chances are one or more of the petroleum solvents you're using today was first developed by AMSCO. AMSCO, in the past 35 years, has developed many new solvents, either for general industrial use, or to suit the specific need of a single industry or manufacturer.

This record has made AMSCO first in new product development.



AMERICAN MINERAL SPIRITS COMPANY

NEW YORK • CHICAGO • LOS ANGELES

General Eastern Offices, Murray Hill, N.J.

NOW! A complete line of Polyethylene Glycols from JEFFERSON!

A complete line of polyethylene glycols is now offered by Jefferson. The newer members are in the higher molecular weight range. For convenient identification, the products are numbered to correspond to average molecular weight.

PEG 200, 300, 400, and 600
... are clear, colorless and odorless liquids and are relatively non-volatile at room temperatures.

PEG 550 B
... having the consistency of petroleum jelly is a new Jefferson product. It is a blend of PEG 300 and PEG 1450.

PEG 1000, 1450, 4000 and 6000
... are white wax-like solids increasing in hardness with molecular weight. PEG 4000 and 6000, new products, are offered as free-flowing granules. PEG 1450 is another new product.

The information you need, the quality you want—are both available from Jefferson. We will be happy to discuss your interest in polyethylene glycols for rubber lubricants, mold lubricants, adhesives, textile sizes and lubricants, cosmetics and pharmaceuticals, and the many other applications for these versatile chemicals. Technical data sheets and specifications will be sent on request. **Jefferson Chemical Company, Inc., 1121 Walker Avenue, Houston 2, Texas.**

JEFFERSON CHEMICAL COMPANY, INC.

HOUSTON • NEW YORK • CHICAGO • CLEVELAND
CHARLOTTE • LOS ANGELES

Essential Chemicals From Hydrocarbon Sources
Ethylene Oxide, Glycols, Dichloride • Ethanolamines • Morpholine • Piperazine • Polyethylene Glycols • Nonyl Phenol • Surfonic® Surface-Active Agents • Ethylene Carbonate and Propylene Carbonate • Caustic Potash • Caustic Soda • Soda Ash • Sodium Bicarbonate

Chemical Week

Forecast '59

Fair and Warmer for the CPI

the indicators all point up—but 1959 will not be
a year of all-out prosperity for the CPI. Rather,
it will be a year of preparation for the
sales-production challenge of the "Golden Sixties."
In this 16-page report to management, CW's
special forecast team brings together the best
thinking on the outlook for '59.

Forecast '59

Fair and Warmer for

For the U.S. economy as a whole—and especially for the chemical process industries—1959 will be a good year—the threshold of the "Golden Sixties" (*CW, June 21, p. 51*).

All aspects of business next year—sales, production, technological progress and, happily, profits—will feel the impetus of the dramatic recession recovery of late '58.

But '59's gains won't be realized without effort.

Management will continue to press hard for increased operating efficiency, to widen profit margins. That means further careful evaluation of inventory positions, more departmental reorganizations than occurred in the year just ending.

It also means additional pruning of less-profitable items from product lines, a conscientious use of personnel, and a greater emphasis on automation.

During '59, look for a stiffening management resistance to mounting labor costs, increased transportation rates, higher equipment prices—expenses that, on the one hand, could exert a downward pressure on net returns and, on the other, offer handy justification for chemical price-boosting.

> 'Management will continue to press hard for increased operating efficiency, to widen profit margins.'

The Economy

The U.S. economy will make some impressive gains over the next 12 months. Gross national product—fundamental yardstick of business—should climb about 7%, hit $465 billion, compared with this year's $435-billion rate.

Industrial output (manufacturing and mining) is also in for a substantial increase. Measured by the Federal Reserve Board Index, '59 will likely finish close to 147 (1947-49=100); in '58, it was 134, a sharp drop from the previous year's 143.

Capital investment by industry as a whole will total about $33 billion in '59. That's a slight upturn from the recession-reined $31 billion spent in '58. In '57, the figure was $37 billion.

> 'An end to the long upward spiral of inflation and a period of relative price stability are in the cards.'

The CPI share of total new plant and equipment outlay in '59: a shade over $3 billion, about the same as was spent this year.

Chemical manufacturers plan to spend on expansion about as much as they did in '58 (approximately $1.3 billion), considerably less than the peak $1.7 billion-plus in '57.

An end to the long upward spiral of inflation and a new period of relative price stability are in the cards for '59. The consumer price index is expected to continue to flatten out.

Government spending will continue its rise—to $80 billion next year, $90 billion five years hence, and $100 billion in a decade. Next fiscal year's deficit: $10-12 billion. It foreshadows no general tax reductions for a long time to come. The push, actually, is in the other direction; under way is a move for a general overhauling of the tax structure, to close up loopholes and to bring in more revenue.

Antitrusters More Active

The temper of a Democratic Congress inclined to New Deal-type action may result in passage of legislation that had almost, but not quite, cleared recent Congresses. High on the list of possibilities: the premerger notification bill requiring big companies to give advance notice to government antitrusters before merging.

Another perennial that may get favorable treatment by the new Democratic majorities: the bill to curb a seller's freedom to cut prices to meet competition. Small-business supporters still feel that "good faith" defense to charges of illegal price discrimination should be limited.

With or without new legislation, the Congressional pot will be boiling in '59. Sen. Estes Kefauver's antitrust and monopoly subcommittee's plan for a probe into the pharmaceutical industry's pricing and profits is one sign of what can be expected in the way of investigations.

The prosecuting agencies will be busy, too:

CW Task Force Produces a Business Preview

The article beginning here is the result of months of study by a CW task force (see cover and preceding page), aided by the McGraw-Hill Dept. of Economics. Included: the outlook for earnings, taxes, markets, technology, legislation, labor relations, foreign developments, expansion outlook.

the CPI

• The fight between the Federal Trade Commission and antibiotics makers over FTC charges of monopoly and price-fixing will get bitter, and a wrangle over disclosure of company documents may wind up in court before the commission gets around to ruling on the charges.

• The Justice Dept.'s price-fixing case against producers of Salk vaccine may get to trial and be decided in '59.

• A court ruling may also come on whether Du Pont must sell or may keep its stock holdings in General Motors—and under what terms.

The antitrusters are expected to use the tough Bethlehem-Youngstown court decision in many of the pending cases involving chemical industry companies, including Crown Zellerbach, Scott Paper, Union Carbide, Procter & Gamble and Lever Bros.

Eye on Foreign Developments

Foreign developments, especially the European Economic Community ("Common Market"), will get more attention from all U.S. industries next year. Kickoff: the first market tariff cut (10% among members) goes into effect Jan. 1.

The new economic group, of course, decided to grant the same 10% reduction to all GATT members, and this action will tend to quiet current agitation among countries arguing for the broader-than-ECC "Free-Trade Area."

It will be '62, however, before the European Common Market will be fully operative. Also in that year, the U.S. Congress will consider renewal of the basic Reciprocal Trade Agreements Act passed last summer. Result: '59 U.S. chemical exports will hold at about $1.5 billion, imports at something less than one-fifth of that volume.

Next year, more emphasis will be placed on overseas manufacturing by U.S. firms. Look for more licensing and sale of U.S. know-how overseas, more wholly and jointly owned foreign plant ventures.

Hotter issue in '59, because of the stepped-up Russian economic offensive, will be the question of more U.S. chemical trade with Iron Curtain countries. Some CPI spokesmen feel there will be more of it, see little reason why European and other world market competitors of the U.S. should skim all the cream off such trade.

> 'Look for more licensing and sale of U.S. know-how overseas, more foreign manufacturing ventures.'

Up—All Along the Line

Dollar volume of the CPI's output will resume its upward climb in '59, rise to a whopping $88 billion —a 10% gain over this year's $80 billion (revised). Thus, the CPI alone will account for nearly 19% of the nation's total dollar value of goods and services in the new year. Gauge of the recent slowdown: the '58 CPI share was 18.4%, about '50's level.

This year, companies in the CPI cut their capacity-increase rate to about 5% (compared with the 6.5% annual average since '53), and there will be a 5% increase in '59.

CPI operating rate will jump from less than 80% of capacity this year to more than 85% next year—a lot closer to the preferred rate, which was set aside by the recession.

> 'Sen Kefauver's plan for a probe of drug pricing is a sign of what investigations can be expected.'

But research expenditures continue to rise regardless of dips in the economy. In '58, money spent by the CPI on R&D topped a billion dollars for the first time. That was a 5% increase in a "slow" year. And in '59, it's likely there will be an additional 6% hike.

Sales of chemicals and allied products (foundation stone of the CPI) during the new year will fall just short of a fat $26 billion—taking into consideration higher chemical prices. It will be an estimated 12% increase over '58. With gross income up that much, chemical companies' profits are expected to jump about 20% above '58 levels.

Reasons for the optimistic outlook on earnings: efficient cost-reduction programs have been instituted this past year that will pay off in wider profit margins in '59; many large, modern plants coming onstream in '59 will be operating at a higher percentage of capacity,

'Funds for major projects will continue to come largely from income and depreciation accruals.'

resulting in further production economies; the anticipated declining rate of expansion means less income will be drained off for startup costs.

Funds for major projects will continue to come largely from retained earnings and depreciation accruals; increased earnings and fewer expansions will enable companies to finance projects from internal coffers.

Capital spending will slip a bit. But the reduction won't knock the chemical industry out of its fifth-place position (with assets of $19.8 billion) among the country's manufacturing groups.

In '59, chemical producers plan to pour about $630 million into research and development, about 5% more than they did this year. It's a continuation of the accent on research, despite an effort to economize at the manufacturing level.

On the Local Front

Higher state and local tax rates—a trend that has continued steadily since World War II—is a virtual certainty in '59.

In '58, when fewer than half the state legislatures were in session, 11 state groups enacted laws raising state levies. Look for much more activity along this line in '59 when 45 state legislatures will be holding regular sessions.

Corporation income tax increases will be considered in Alabama, California and New Jersey. Other types of taxes to watch for in the coming year: sales and use, gasoline and wheelage, franchise, severance, and taxes on consumption of gas and electricity.

Control of pollution of air and streams again will be a major issue in highly industrialized states and communities in '59. A sample of what's ahead is the move by the Los Angeles board of supervisors to prohibit the burning of certain grades of fuel oil by industrial concerns for a six-month period in '59, and for seven months in each following year. The ban applies to fuel oils containing more than 0.5% of any sulfur compound.

And Washington's state pollution control commission is planning to intensify its water pollution abatement program. The program will be expensive, the director warned a meeting of pulp and paper company executives last month, and industry will be expected to bear a large share of the cost.

Labor-Management Relations

The new year will be rough in labor-management relations. Unions will press for more militancy by locals. Necessity for tempering aggressiveness because of the recession is evaporating. And the political climate, with Democrats in power, will also help foster stronger union efforts. The big argument will be over wages. Look for settlements averaging 10-12¢/hour.

Another upcoming union point that will get a big play: compensation for automation. Many plants will be operating at high '56-'57 levels but with smaller, more productive complements, and those still working will use this as a pry for higher demands.

Fringe and other benefits will be sidetracked until about midyear, when most wage disputes will be settled. One likely union victory: an eighth paid holiday.

Chemical industry strikes, when th y come, will be generally local in scope. But watch for this wrinkle: unions will time local stoppages to simultaneously shut down a company's several plants in different locations.

A single powerful labor union with company-wide bargaining powers throughout the chemical industry is the aim of chemical union chiefs. By mid-'59, leaders of the Oil, Chemical & Atomic Workers and the International Chemical Workers Union will be working earnestly to reach that goal. All chemical negotiations next year will be tinged with their zeal.

On the other side of the table, company executives' salaries, steady throughout '58, may start upward again in '59, along with the economy. Sales and management compensation tie-ins will be more prevalent.

Bustle in Markets and Marketing

For chemical marketers, the pickup in demand in '59 will bring welcome relief from the twin pressures of overcapacity and oversupply that have plagued the trade since '57. Stepped-up activity is in sight for most heavy chemicals and large-volume chemical products. Chlorine, for one, will do better because of greater need by major outlets (e.g., pulp and paper, pesticides, propellents, refrigerants). The brighter outlook for fertilizers and generally increased manufacturing spell out a good year for sulfuric acid use.

Petrochemicals production is expected to rise about 10% in '59—to a total industry output of some 47.1 billion lbs.

A number of soft spots will last through the new year, however. Examples: benzene, phthalic anhydride,

'The accent on research will continue, despite an effort to economize at the manufacturing level.

fluorocarbons, epoxy resins, methanol, toluene. Pickup in government demand for toluene (military requirements for jet fuels, beyond-normal call for aviation gas) may ease the oversupply situation.

Plastics producers, long bothered by overcapacity, will live with the problem another year or two before demand generally catches up. Polyethylene sales may crack the billion pounds/year mark next year, even without the spectacular hula-hoop boost of '58. Anticipated for reinforced plastics: a near-15% sales gain, compared with this year's 10% hike.

For vinyls, polystyrene and phenolics, '59 will show moderate increases, but look for some cutbacks in epoxy production.

European competition will be of greater concern to U.S. plastics makers than in previous years. Considerable new foreign capacity is now coming onstream. Foreign production growth is also expected to hit U.S. exports of synthetic rubber.

In the U.S., though, rubber producers are "highly optimistic" about next year's prospects, say the increase in auto production will boost sales of tires and other rubber products.

Pesticide use will climb to new highs, for several reasons: increased crop production because of federal decontrol of acreage (a hypo for fertilizers, too); continuation of government mass-spraying programs; a bigger overseas market, largely through aid programs for underdeveloped countries.

Chemical price increases will pop up more frequently than were noted in '58; it won't take a major economic spurt to get sellers to post price hikes that were held off in '58, or to compensate for necessary earlier price reductions.

More Piggybacking: The big marketing attention-getter in '59 will be transportation. Chemical shipments, in terms of tonnages, will rise appreciably as business betters, and this means higher freight bills. But shippers may get some cost-shaving breaks:

- Widespread adoption of "agreed" or contract rates, which offer rate reductions for shipping a specified percentage of total freight over a stated time period with a specific carrier.
- More piggyback transportation. (Railroads are working up proposals to set new, lower rates for shipments in trailers or containers aboard flatcars.)
- Fewer truck rate increases if truck carriers lose business because of piggyback and agreed-rate deals.

Net effect of piggybacking: rates would shift from a commodity to a straight weight basis offering chemical shippers savings as high as 60%.

But the new deal won't come easily. Truckers are strenuously protesting the idea, claiming that their industry would be wrecked. And government agencies are worried about the ultimate effect flat-weight rates might have on the whole truck-rail competitive picture.

Likely outcome on piggybacking in '59: compromises. ICC will probably tone down rail requests, at least for short hauls; piggyback rates may be related to specific commodities.

One other likely bonus for chemical shippers in '59: special low rates for using "jumbo" tank cars, which are as large as two regular-size cars.

'Unions will press for more militancy by locals . . . Likely union victory: an eighth paid holiday.'

'Corporation income tax increases will be considered in Alabama, California and New Jersey.'

Good Year for Specialties

Chemical specialties makers weathered the recession in good form, and they will do a booming business in '59.

A *CW* survey turned up these signs for an optimistic year: 88% of the country's specialty producers will add new products to their lines; 43% plan production expansions; more than 90% envision better sales than were racked up in '58.

Here's what's likely to happen in '59 in some specific areas of the multibillion-dollar specialties field:

- Paint sales will stay up around $1.6 billion. New housing starts will add markets, but some of the gain will be offset by use of plastics, aluminum and other nonpainted surfaces.
- Aerosols will have a steady, unspectacular growth. Nonfood containers, now at 420-million-units/year production, should rise some 10%. Food product use is coming slowly, but aerosol coffee (introduced this month) may be the first big user of nitrogen-filled pressure packages, say optimists.
- In the soap vs. detergent market, detergents will again take a greater percentage—but the rate of takeover is slowing. In '58, syndets had 72.8% of the cleaning market; in '57, it was 70.7%; the previous year, 67.6%.
- Industrial specialties will have a good sales year. Use of asphalt binders, especially, will increase, now that the highway program is finally getting up steam. Another factor: the growing need for longer airport runways to handle jets.
- There will be a continuation of the trend toward synthetics in floor finishes. One reason: substantial

'Executives' salaries, steady during '58, should start upward again, along with the economy.'

price reductions in raw materials. A new '59 possibility is a styrene copolymer finish.

• The anticipated economic brightening will be a boon to the cosmetics industry—women won't feel quite so skittish about purchasing expensive items. Look for '59 to be a record year in a number of new products, and in dollar sales of all cosmetics lines.

Upbeat on Technology

Computer control for production operations will make inroads in the chemical industries next year. Several chemical producers plan at least limited use of these control systems in commercial processing facilities in '59.

The government's stepped-up missiles program and recent awarding of subcontracts for chemical-fueled aircraft, will turn the spotlight on propellent and chemical fuel production techniques and use. Result: look for applications in chemical processing for high-energy fuel intermediates, e.g. boron compounds.

The CPI's extensive research and development work on exotic metals will pay off in '59. Newer techniques (solvent extraction, electron-beam melting), will make possible commercial quantities of some of the "miracle metals" at prices low enough to permit some use in chemical process equipment, and in certain rocket, missile and nuclear applications.

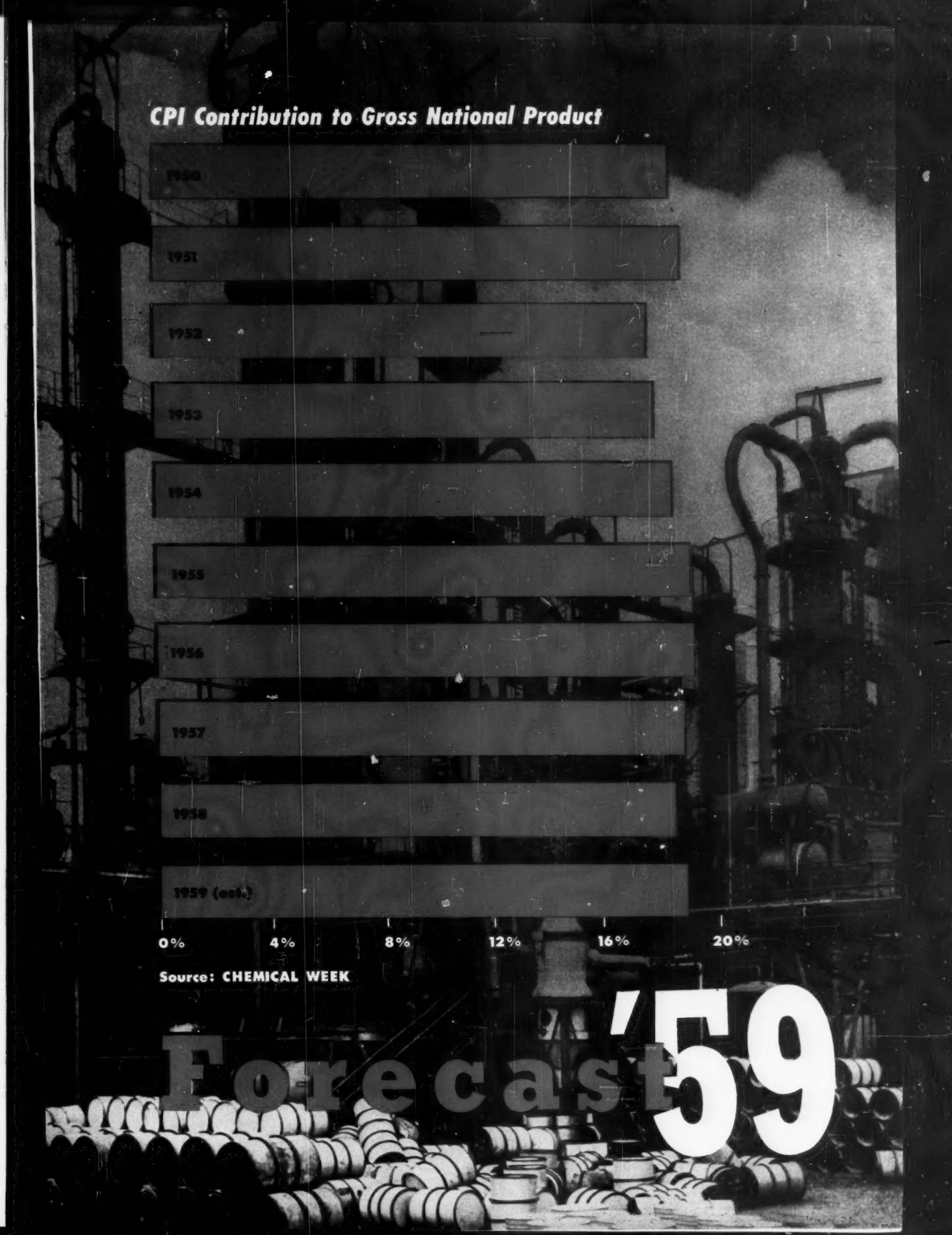
Chemical companies, however, will still bide their time about entering nuclear ventures. Hence, reprocessing of spent fuel and disposal of radioactive wastes —two of the most needed nuclear processing services— will proceed slowly.

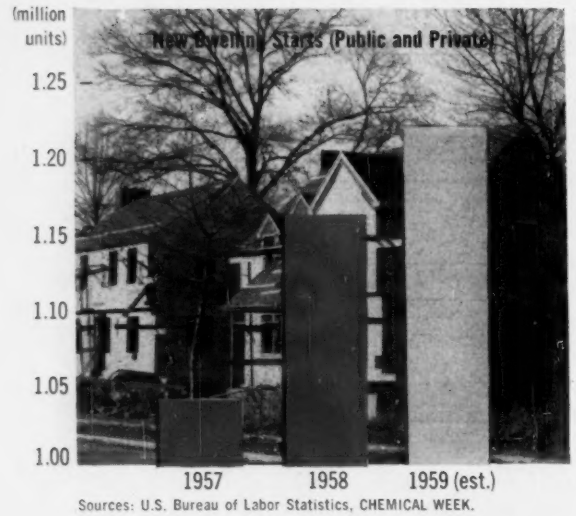
Because of the time lag between awarding contracts and start of actual construction, recession-caused cutbacks of '58 will be reflected in chemical construction. Don't look for a building boom until the '60s.

There'll be more lab work done next year than ever before because of hefty boosts in research and development expenditures. CPI R&D spending will total $1.11 billion; for chemical and allied products industries, about $630 million.

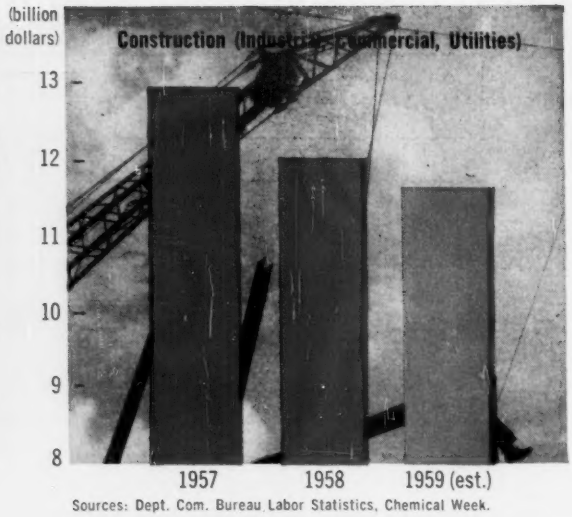
'Plastics producers, long bothered by overcapacity, will live with the problem another year or two.'

on the ➧
following
10 pages
are ➧
the
figures that
plot the
uptrends ahead . . .
the tools
you ➧
will need
to prepare
for the
challenges
of 1959 ➧

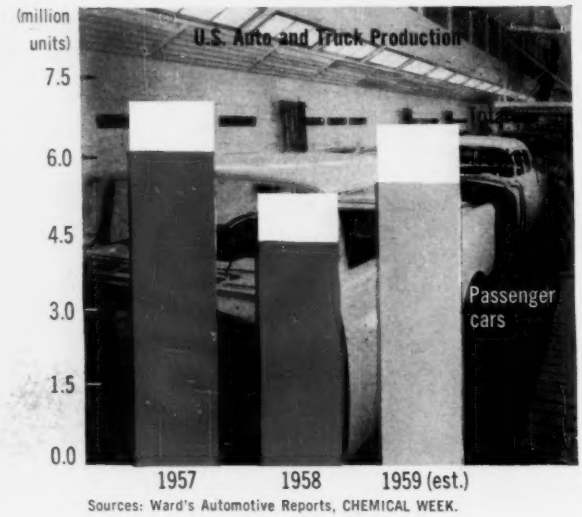

CPI Contribution to Gross National Product
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959 (est.)
0%
4%
8%
12%
16%
20%
Source: CHEMICAL WEEK
Forecast '59



Sources: U.S. Bureau of Labor Statistics, CHEMICAL WEEK.



Sources: Dept. Com. Bureau Labor Statistics, Chemical Week.



Sources: Ward's Automotive Reports, CHEMICAL WEEK.

Sources: American Iron & Steel Institute, CHEMICAL WEEK.

Forecast '59

To round out Forecast '59 (see p. 37 for start of report), CHEMICAL WEEK presents 10 pages of key statistics.

In addition to studied predictions for the new year, '57 and '58 data are provided as significant benchmarks.

The figures—compiled and interpreted by *CW* editors—come from many sources, including companies, government agencies, *CW*'s files and the McGraw-Hill Economics Dept. Many usually unavailable figures were independently derived.

Some important trends are apparent. Highlights:

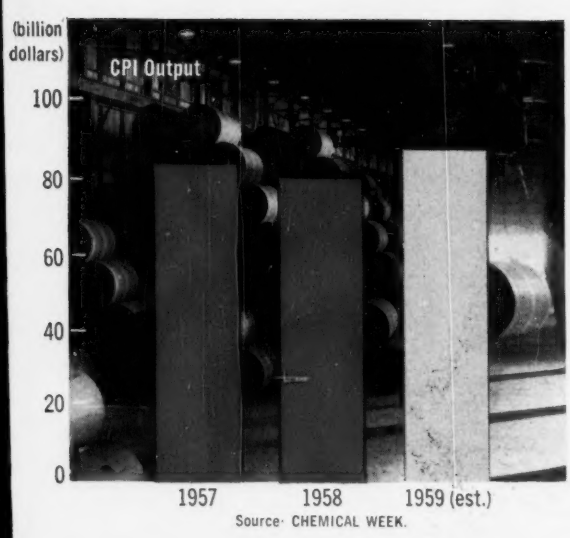
Data for Decision-

For the country as a whole, the recession is definitely petering out. Gross national product is heading up again; industrial production will hit new peaks.

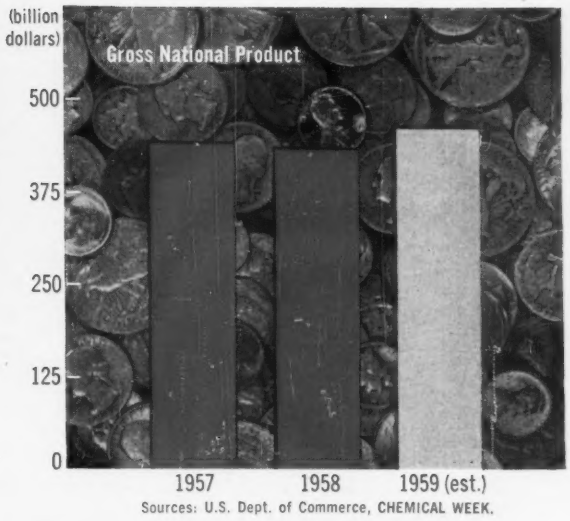
Most noticeable pickup will be in steel, automobiles and home appliances—mainstays of the durable goods industries—partly because these areas were hardest hit in the recent setback.

Steel output will leap to 107 million tons (vs. 85 million in '58), tabbing '59 as the industry's fourth-best production year.

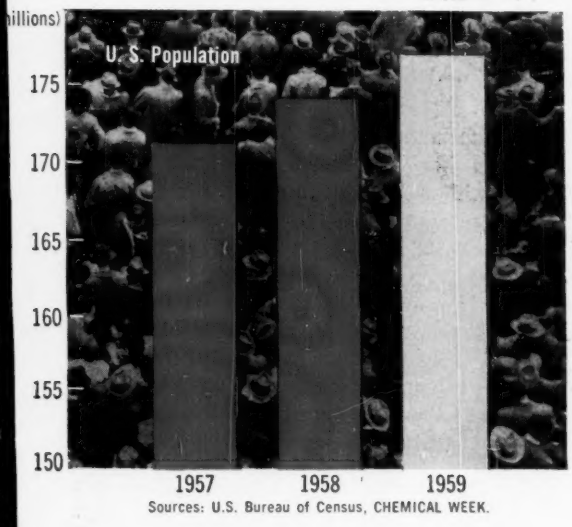
Production of cars and trucks will probably total



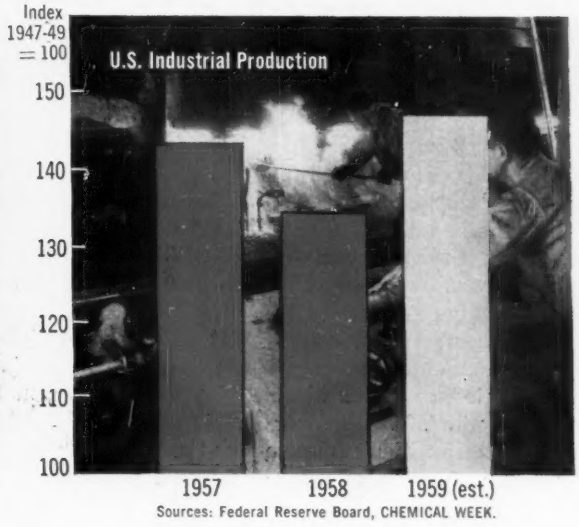
Source: CHEMICAL WEEK.



Sources: U.S. Dept. of Commerce, CHEMICAL WEEK.



Sources: U.S. Bureau of Census, CHEMICAL WEEK.



Sources: Federal Reserve Board, CHEMICAL WEEK.

Making in the Business Year Ahead

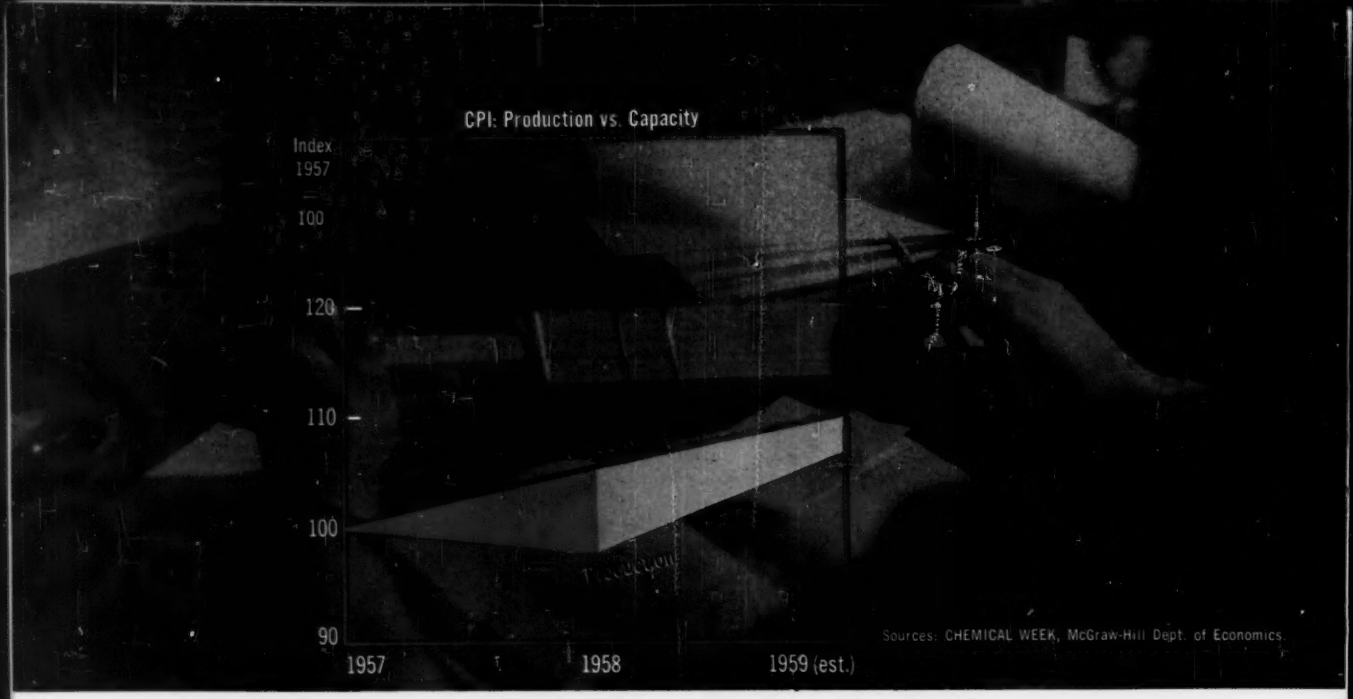
6.5 million units next year, up 20% over '58, though still 500,000 units short of '57 and a long way from the record 8.1 million set in '55.

Population growth is a controlling factor for the long-range broadening of all markets. And '59 will see a further climb—to 177 million—in the upward-trending population line.

Over-all construction will also register gains in the new year—private building up 3%; public construction up 14% for a total of over $51 billion. The present high rate of residential building will continue, at least through the first half of '59, then taper off. Dollar volume of industrial construction, though, is expected to drop an additional 3% after the steep losses suffered this year. It's the one weak spot in an otherwise strong economic outlook.

But dollar value of the chemical process industries' output in '59 will be some $8 billion higher than the $80 billion registered this year. Significantly, CPI output will surpass—by about $5 billion—the dollar volume turned out in '57.

For a close-up of selected industries, see pp. 46-52.



Forecast '59

Process Industries Gains

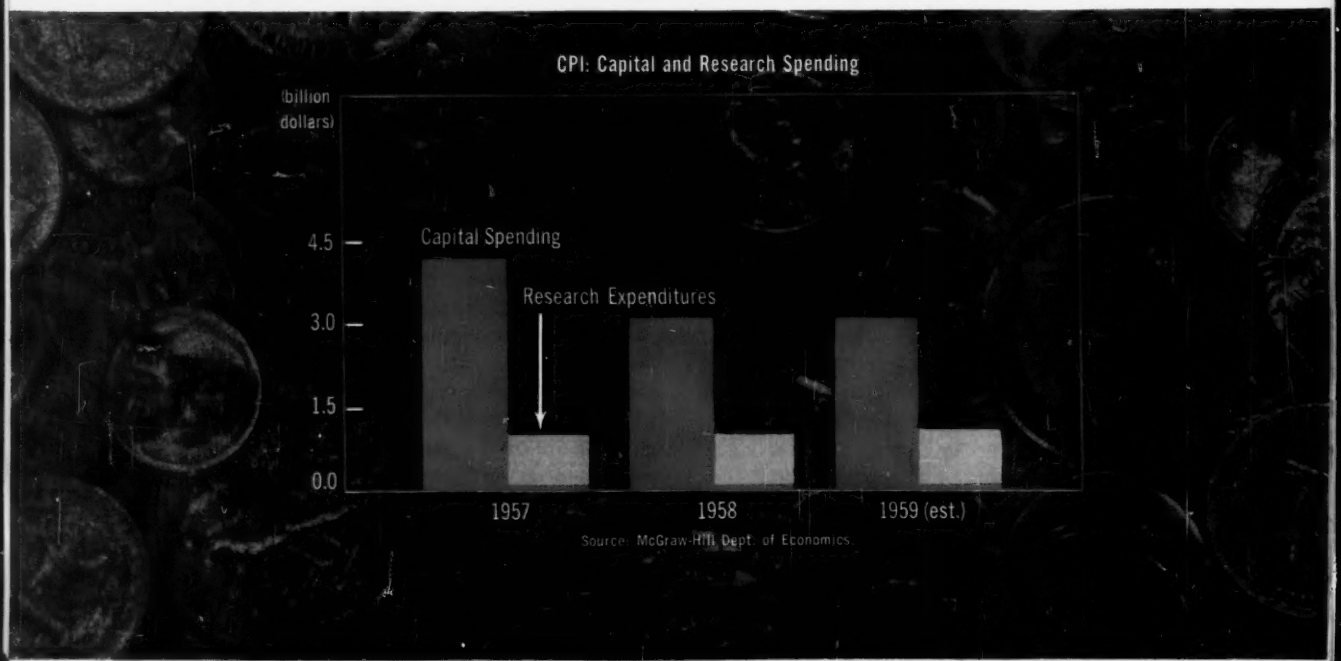
For the chemical process industries, '59 will bring a resumption of long-term growth. Physical output will bounce up 9%, after dropping 2% in '58. By way of comparison, total U.S. industrial production, which will just about match the anticipated CPI climb next year, slipped a distressing 6% during the past 12 months.

The CPI contribution to GNP (*see p. 43*) next year will come very close to the 19% registered in the post-Korean peak period, compared with the 18.4% share in '58 (on a par with '50).

Chemical process companies plan to spend as much on new plant and equipment in '59 as they did this year. Capital expenditures in '58 were more than $1 billion less than they were the year before, but even the '57 record will be shattered in the early '60s.

In '59, CPI plants will be operating at an average rate of more than 85% of capacity—for some it will be near 90%—much closer to the preferred rate than the below-80% average of the past year and a half.

Consensus on spending on research and development during the new year: no letup. In '57, such CPI expenditures totaled some $990 million; in '58, $1-billion mark was passed for the first time ($1.04 billion). And for '59, it's estimated that research and development will cost the CPI a full $1.11 billion.



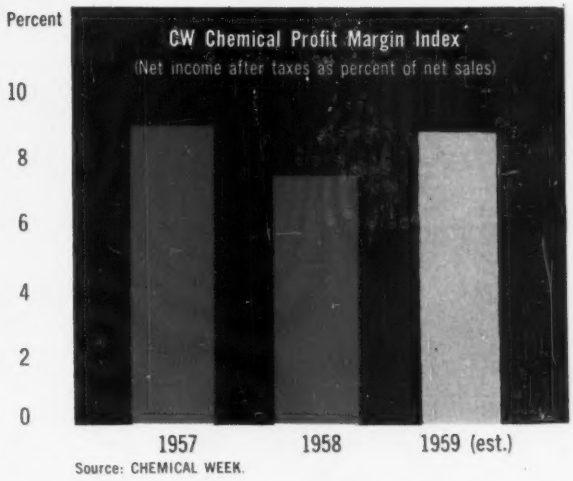
Charting Chemical Growth

Good news for chemical companies: profits will fatten in '59. *CW*'s profit margin index will climb to 8.95 vs. 7.50 in '58.

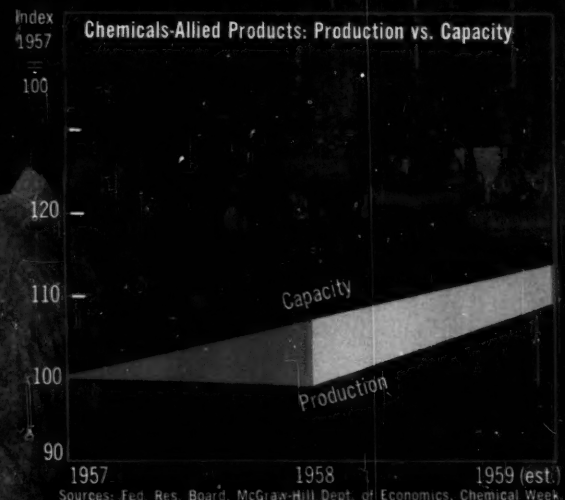
Chemicals and allied products sales and production should reach new highs. Sales prediction for '59: $26 billion, up 12% over '58. Some of the increase will be provided by price hikes. Exports and imports of chemicals will both show modest gains.

Capital expenditures will be off slightly, since many major expansion programs were completed this year.

All chemical and allied groups, including soaps and detergents, fertilizers, synthetic fibers, plastics and pharmaceuticals, will produce more, will spend more on research and development (*see charts*).

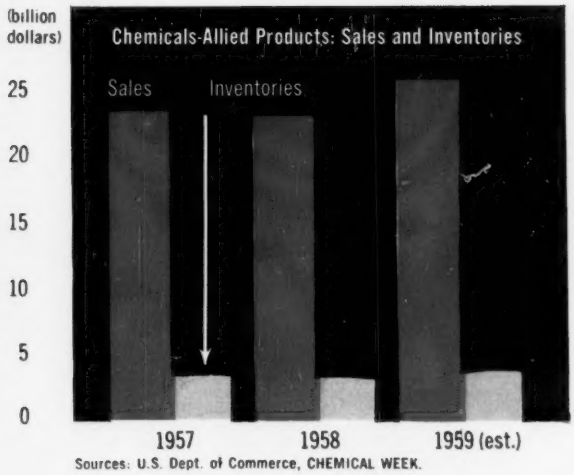


Source: CHEMICAL WEEK.

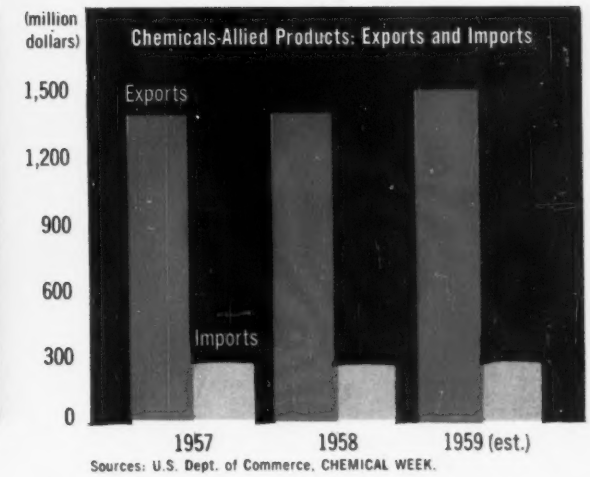


Sources: Fed. Res. Board, McGraw-Hill Dept. of Economics, Chemical Week.

Source: McGraw-Hill Dept. of Economics.

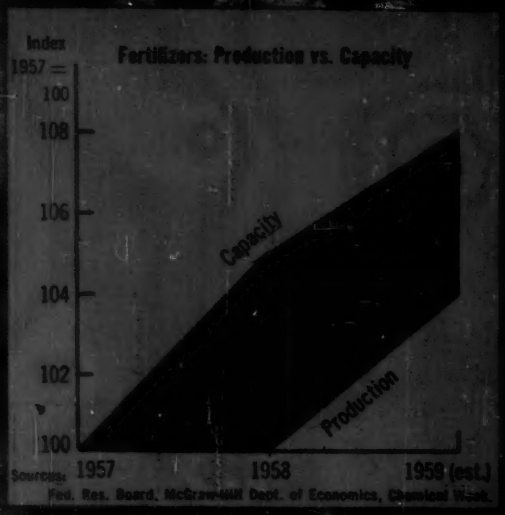


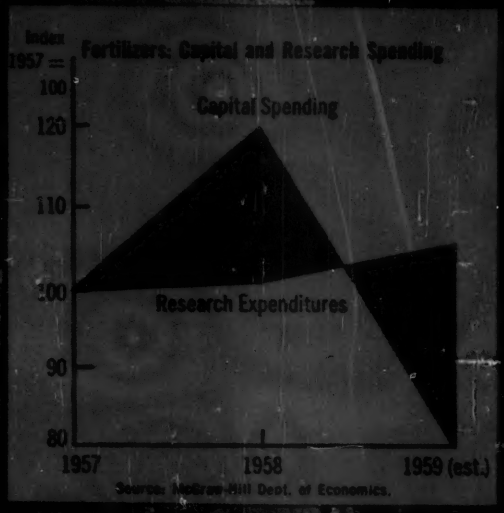
Sources: U.S. Dept. of Commerce, CHEMICAL WEEK.

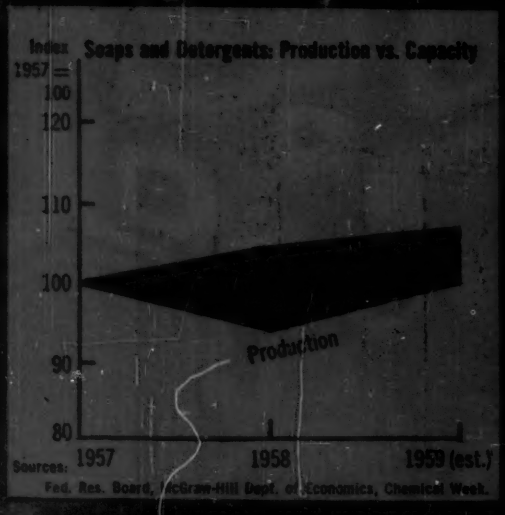


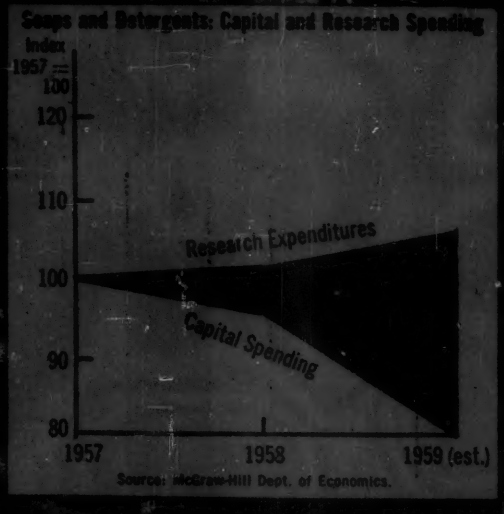
Sources: U.S. Dept. of Commerce, CHEMICAL WEEK.

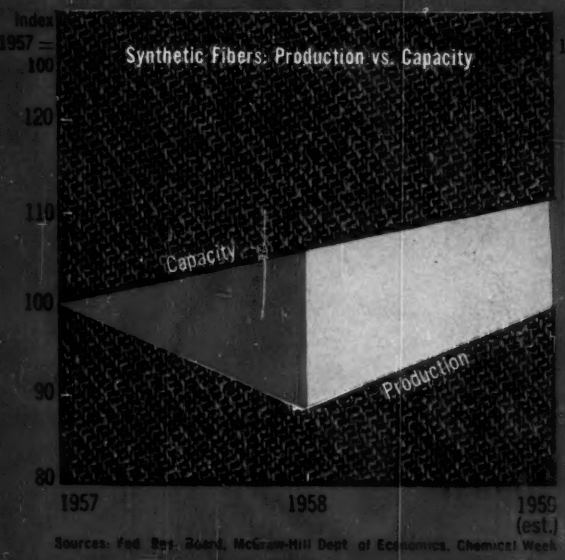
Chemicals and Allied Products Close-up



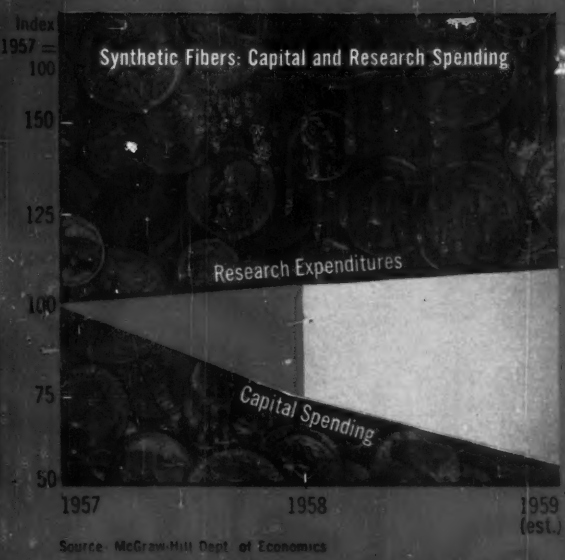




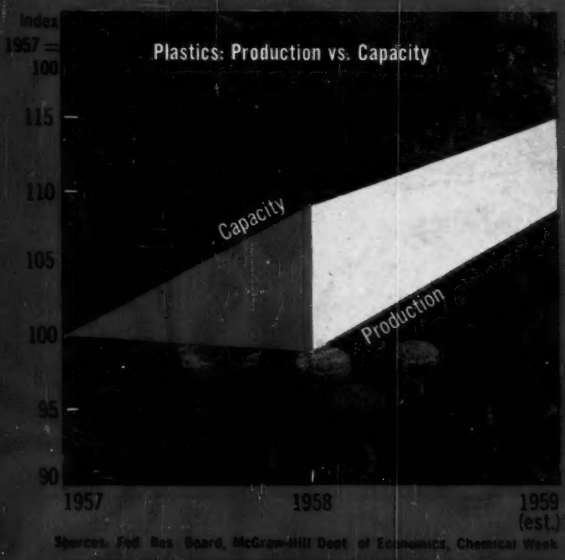




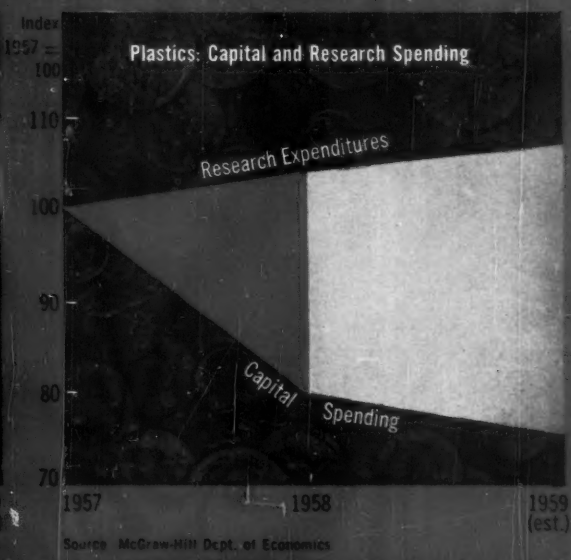
Sources: Fed. Res. Board, McGraw-Hill Dept. of Economics, Chemical Week



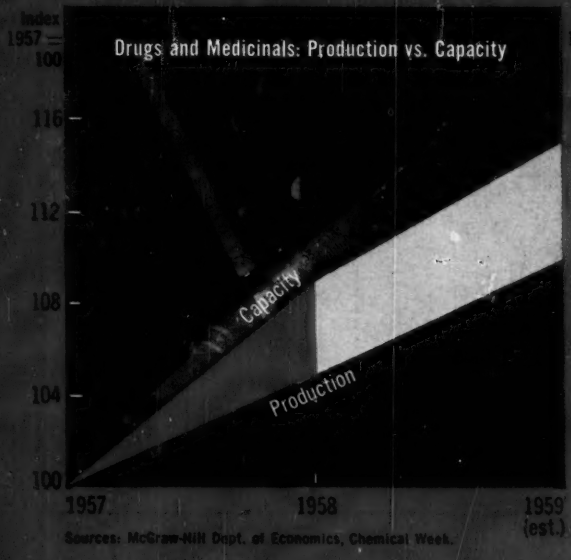
Source: McGraw-Hill Dept. of Economics



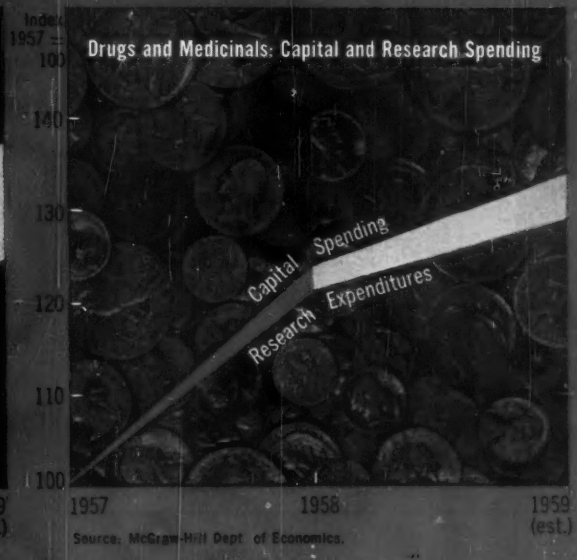
Sources: Fed. Res. Board, McGraw-Hill Dept. of Economics, Chemical Week



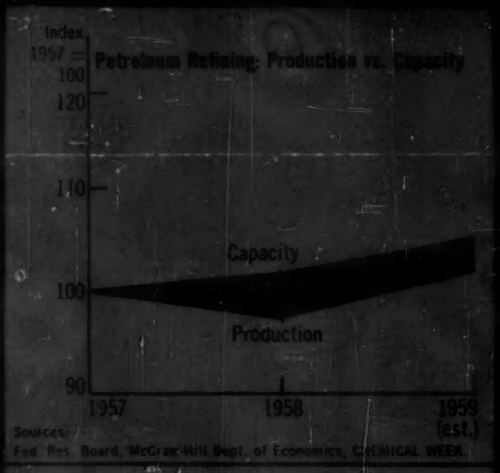
Source: McGraw-Hill Dept. of Economics

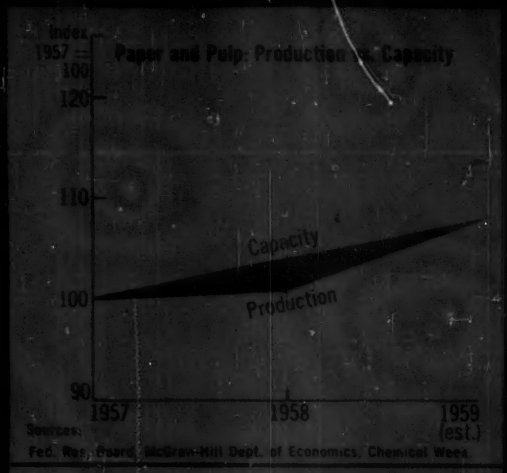


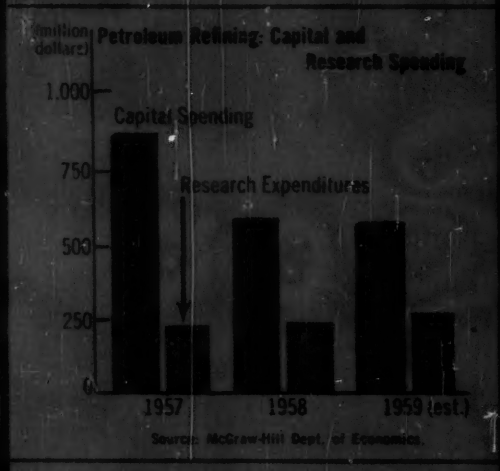
Sources: McGraw-Hill Dept. of Economics, Chemical Week

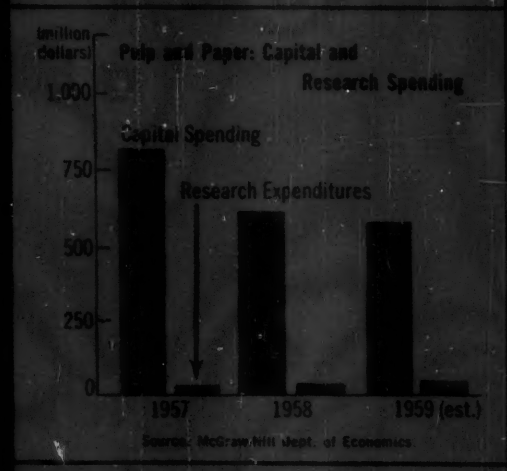


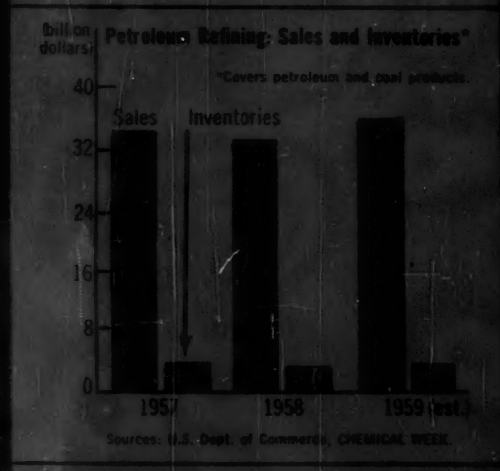
Source: McGraw-Hill Dept. of Economics.

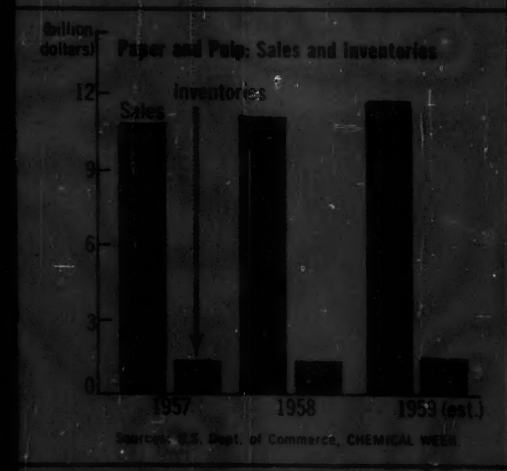

Index 1957 = 100
Petroleum Refining: Production vs. Capacity
120
110
100
90
Capacity
Production
1957
1958
1959 (est.)
Sources:
Fed. Res. Board, McGraw-Hill Dept. of Economics, CHEMICAL WEEK


Index 1957 = 100
Paper and Pulp: Production vs. Capacity
120
110
100
90
Capacity
Production
1957
1958
1959 (est.)
Sources:
Fed. Res. Board, McGraw-Hill Dept. of Economics, Chemical Week


(million dollars)
Petroleum Refining: Capital and Research Spending
1,000
750
500
250
0
Capital Spending
Research Expenditures
1957
1958
1959 (est.)
Source: McGraw-Hill Dept. of Economics


(million dollars)
Pulp and Paper: Capital and Research Spending
1,000
750
500
250
0
Capital Spending
Research Expenditures
1957
1958
1959 (est.)
Source: McGraw-Hill Dept. of Economics


(billion dollars)
Petroleum Refining: Sales and Inventories*
*Covers petroleum and coal products
40
32
24
16
8
0
Sales
Inventories
1957
1958
1959 (est.)
Sources: U.S. Dept. of Commerce, CHEMICAL WEEK

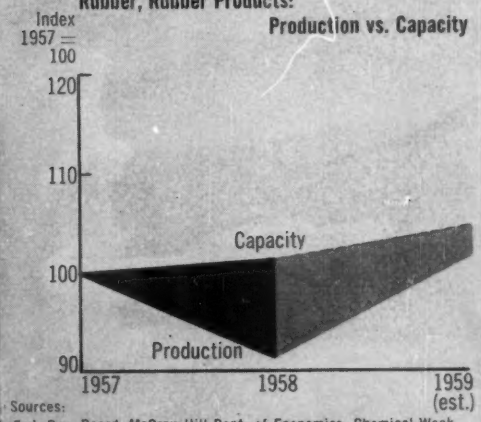

(billion dollars)
Paper and Pulp: Sales and Inventories
12
9
6
3
0
Sales
Inventories
1957
1958
1959 (est.)
Sources: U.S. Dept. of Commerce, CHEMICAL WEEK

Forecast '59

CPI Roundup

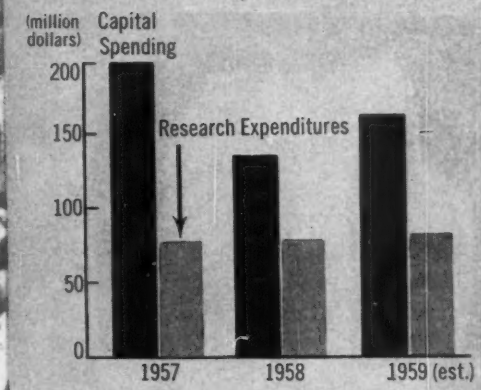
For other segments of the CPI, particularly those charted on these pages (petroleum refining, paper and pulp, rubber and rubber products, ceramics), business will be more active in '59. Look for higher sales and production, more new capacity, more research spending. Manufacturers of rubber and rubber products, for example, expect an 11% gain in sales volume. Output in the recessionproof paper and pulp industry averaged

Rubber, Rubber Products: Production vs. Capacity



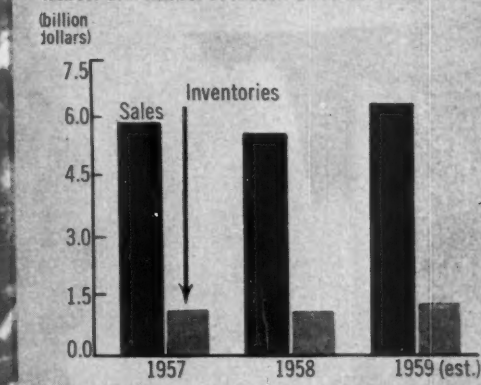
Sources: Fed. Res. Board, McGraw-Hill Dept. of Economics, Chemical Week.

Rubber and Products: Capital and Research Spending

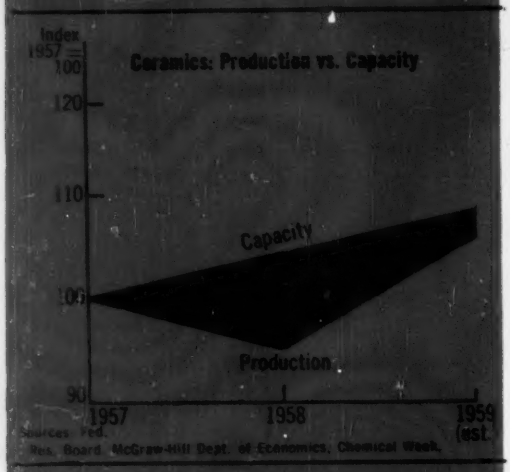


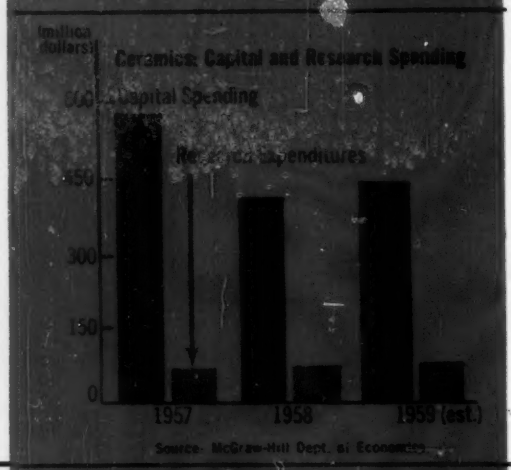
Source: McGraw-Hill Dept. of Economics.

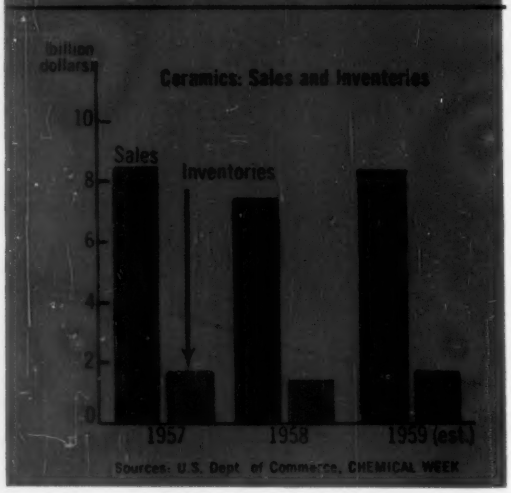
Rubber and Rubber Products: Sales and Inventories



Sources: U.S. Dept. of Commerce, CHEMICAL WEEK.





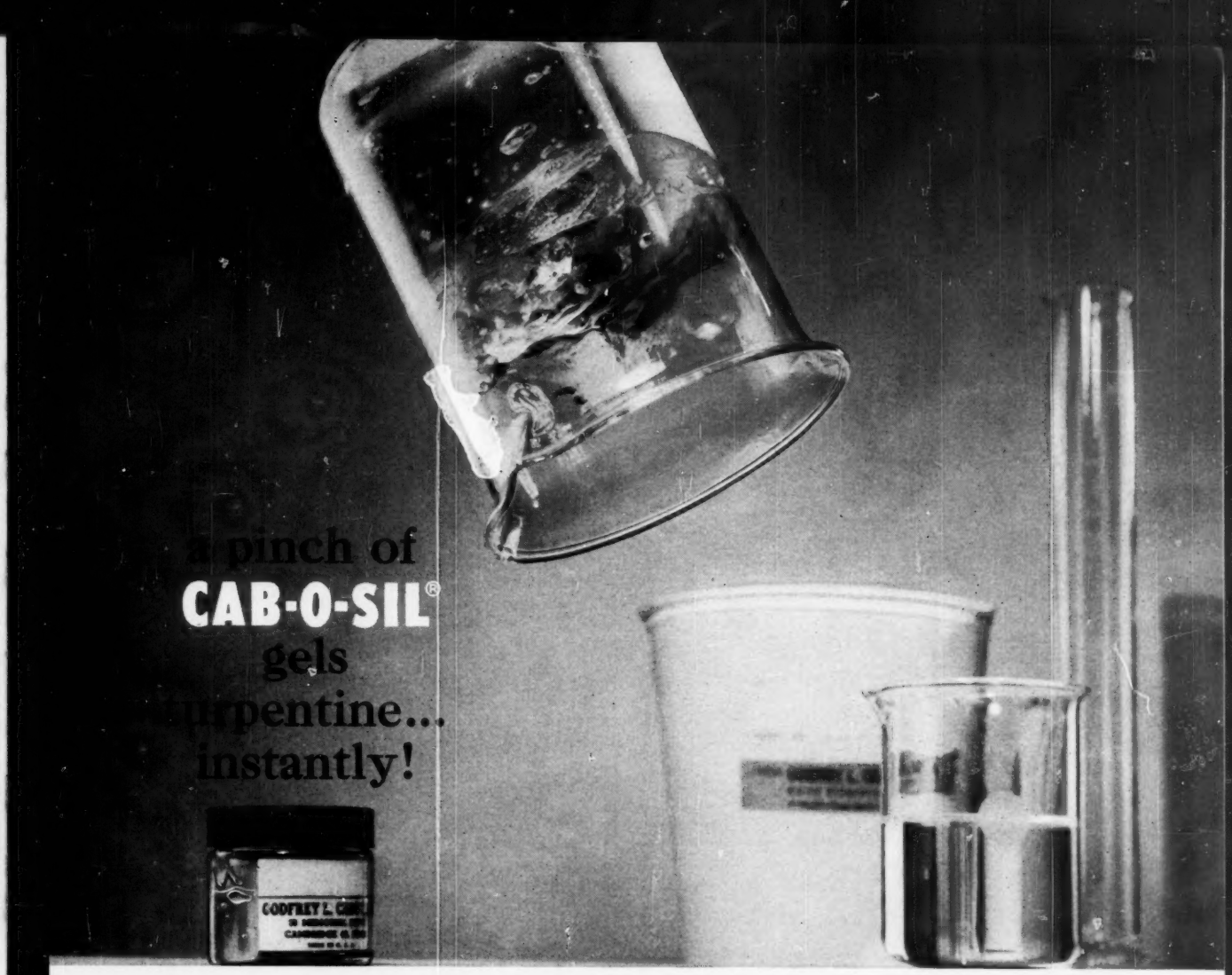


Forecast '59

1% higher in '58 than in '57, will be up an additional 7% next year. And that just about spells out the trend —up all along the line for the economy generally and the CPI specifically. It will mark '59 as a good year, the threshold of the booming half-decade ahead.

Reprints

. . . of this report are available at $1 each from Reprint Dept., Chemical Week, Room 2400, 330 West 42nd Street, New York 36, N.Y. Bulk rates on request.



airborne silica...it's white magic!

Add 8% Cab-o-sil to turpentine — shake a second — turpentine "sets up" instantly. The following percentages of Cab-o-sil by weight produce soft gels with the corresponding liquids: 12% in water; 11% in ethylene glycol; 9% in butyl alcohol; 7% in benzene.

The instant gelling characteristics of super-fine Cab-o-sil®, the "airborne" silica, are useful in improving a wide range of products including lubricating oils, greases, polyester resins, epoxy resins, plastisols, and organosols.

But this kind of "white magic" is just one of the many "miracles" this "different" silica is capable of performing — and in amazingly small concentrations. That's because Cab-o-sil combines exceptional purity and enormous surface area with an unprecedented ease of dispersion, freedom from moisture, and unusual optical characteristics . . . properties which make it one of the most versatile raw materials you can use.

USES:

- **Thixotropic, thickening, gelling agent**—lubricating oils, greases, polyester resins, epoxy resins, plastisols, plastigels, organosols
- **Suspending agent** — paints
- **Flatting agent** — varnishes, lacquers, organosols, plastisols
- **Reinforcing agent** — rubber, silicone, latex film
- **Anti-caking agent** — sulfur, insecticides
- **Anti-slip agent** — solvent base floor waxes
- **Precoating material** — reproduction paper
- **Low temperature thermal insulation**

Now produced for the first time in the U. S.—manufactured to meet your exact quality-quantity specifications at Cabot's new Tuscola, Illinois plant — the only U. S. plant manufacturing "airborne" silica.

We invite you to use the coupon below.

CABOT®

Minerals & Chemicals Division, CW

GODFREY L. CABOT, INC. 77 Franklin Street, Boston 10, Mass.

☐ Please send me a free Cab-o-sil sample for testing

☐ Please send me complete technical data on Cab-o-sil for.....
(your field or industry here)

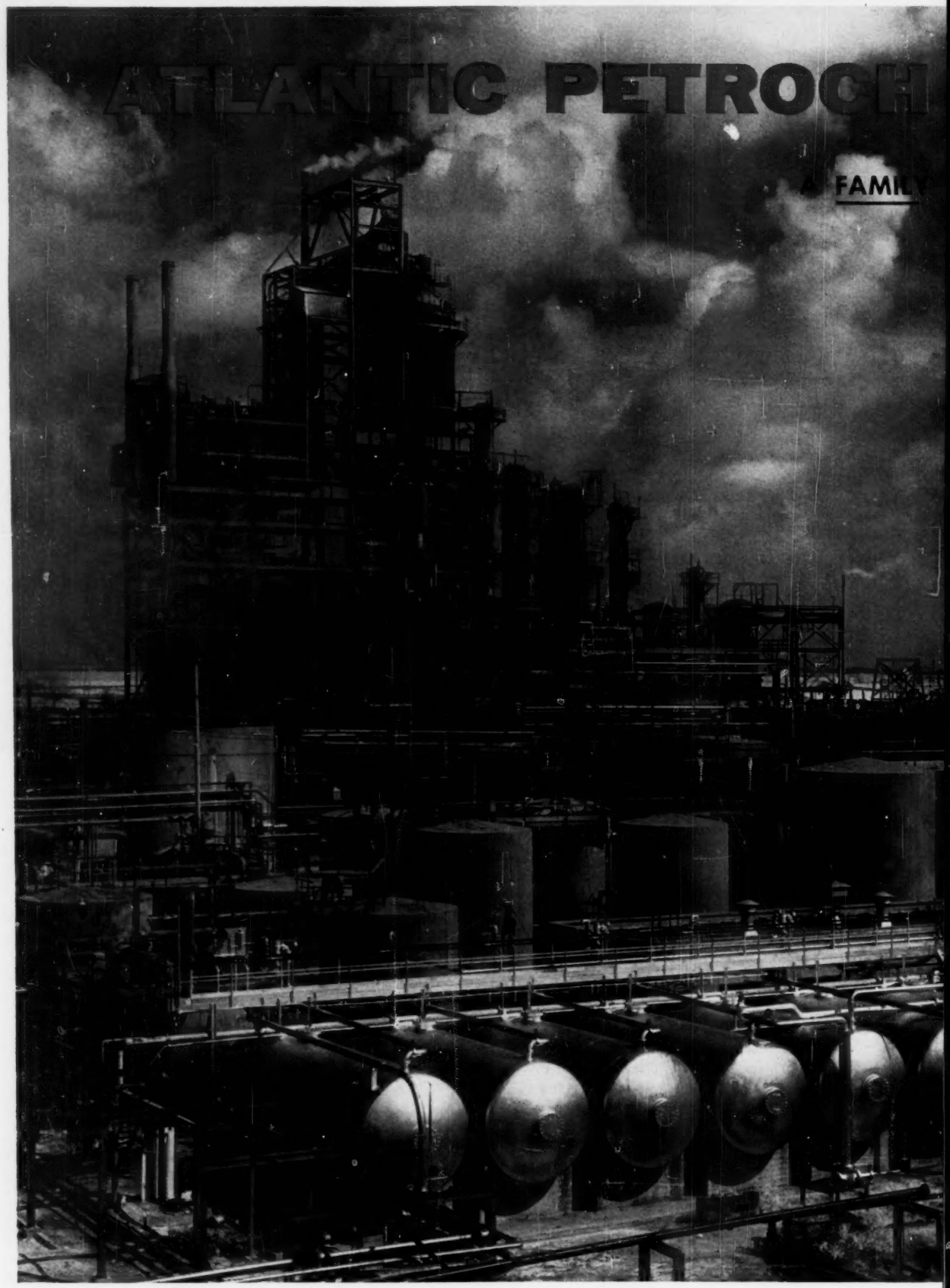
NAME.....

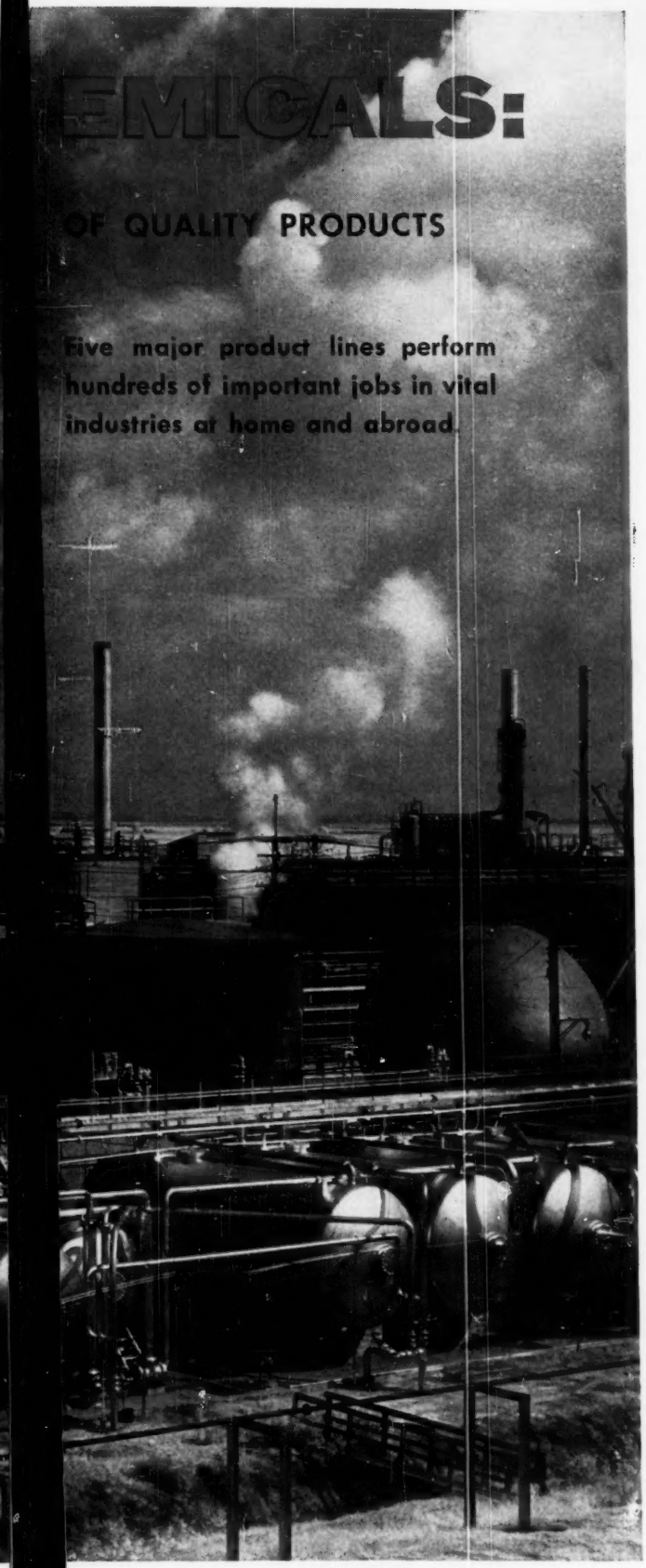
TITLE.....

COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....


ATLANTIC PETROCH
A FAMIL



EMICALS:

OF QUALITY PRODUCTS

Five major product lines perform hundreds of important jobs in vital industries at home and abroad.

ULTRAWETS: Used in literally hundreds of detergent and cleaning formulations. Also as surface active agents in textile processing, for stabilizers in latex paint, frothing agents in the manufacture of gypsum board and in cosmetic preparations such as shampoo.

TECHNICAL EICOSANE: Used as a plasticizer in plastics, a chemical intermediate for lube oil additives, and to produce fire-retardant compounds.

OLEFINS: Used as a chemical intermediate to produce rubber chemicals and in the manufacture of lube oil additives, insecticides, dyes, resins and surface active agents.

ANHYDROUS AMMONIA: Used as a soil nutrient, in the synthesis of plastics, in annealing stainless steels, case hardening alloy steels and in the production of nitric acid that serves as the oxidizing agent in rocket fuels.

DETERGENT ALKYLATE: Used to produce detergents and surface active agents for many domestic and industrial applications.

For complete information on how these quality products can help in YOUR operation, write or wire Chemicals Division, The Atlantic Refining Company, 260 South Broad Street, Philadelphia 1, Pennsylvania.

LOOK TO ATLANTIC FOR QUALITY

Philadelphia • Providence • Charlotte • Chicago • Los Angeles

ATLANTIC PETROLEUM CHEMICALS

In Canada: Naugatuck Chemicals Division of Dominion Rubber Co., Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

In South America: Atlantic Refining Company of Brazil, Rio de Janeiro, Brazil

Non-ionic surface-active product on the basis of fatty alcohol ethylene oxide.
Many possibilities of application in chemical industry.

DEUTSCHE HYDRIERWERKE GMBH
Germany Düsseldorf

DISTRIBUTORS IN USA:
EAST COAST: Fallek Products Company Inc., 165 Broadway, New York 6, N.Y. MIDWEST: A. H. Carnes Co., 75 East Wacker Drive, Chicago 1, Ill. SOUTH: Ben R. Hendrix Trading Co., Inc., 366 Marine Building, 210 Carondelet Street, New Orleans 12, La. WEST COAST: The East Asiatic Co., Inc., 850 West 6th St., Los Angeles 14, Calif. The East Asiatic Co., Inc., 465 California Street, San Francisco 4, Calif. • The East Asiatic Co., Inc., 417 Equitable Building, 421 S. W. Sixth Ave., Portland 4, Oregon.

DISTRIBUTORS IN CANADA:
EAST COAST: Canarga Limited, Suite 223, Drummond Building, 1117 St. Catherine Street West, Montreal. CENTRAL: Canarga Ltd., 137 Wellington St. W., Toronto. BRITISCH COLUMBIA: The East Asiatic Co. (B. C.) Ltd., Marine Building, Vancouver 1, B. C.

useful and economical
in paints • ceramics • plastics
and perhaps your product...

Properties: 97.8% pure calcium silicate
- wholly fibrous (see cut—500X mag.)
- bright, clean, low refractive index (1.63)
- low oil (or vehicle) absorption
- no volatile constituents (or water of crystallization)
- good electrical properties

For free samples and facts, write:
CABOT **GODFREY L. CABOT, INC.**
77 Franklin Street, Boston 10, Mass.
I am interested in Wollastonite for
(YOUR FIELD OR INDUSTRY HERE)
NAME_____TITLE_____
COMPANY_____
ADDRESS_____
CITY_____ZONE_____STATE_____

South's Sharp Gain in Radioisotope Uses in '58

	Medical, Schools	*Industrial*	*Others*	*Total May 31, '58*
Alabama	23	20	5	48
Arkansas	17	7	3	27
Delaware	3	7	3	13
Florida	47	10	6	63
Georgia	25	13	4	42
Kentucky	20	10	4	34
Louisiana	26	25	3	54
Maryland	25	19	15	59
Mississippi	9	4	1	14
North Carolina	36	12	7	55
Oklahoma	25	29	8	62
South Carolina	8	3	1	12
Tennessee	39	16	5	60
Texas	121	87	21	229
Virginia	35	22	11	68
West Virginia	20	8	2	30
Totals (16 states)	479	292	99	870

South Takes Regional Route to Nu

State legislators throughout the South this week are studying the pros and cons of a problem they expect to face early in the '59 legislative sessions: ratification of a regional, interstate nuclear energy compact. For process industries management, the proposed 16-state compact might prove both a blessing and a bane.

In many respects, process management would benefit from the proposed compact, which is designed to promote coordination and unity of purpose—on a regional basis—in developing peaceful uses of the atom. Already, the region is registering significant growth in its use of radioisotopes (*see table, above*).

On the other hand, Southern-based process companies might find themselves squarely in the middle of a federal-state battle over regulation of users of radiation sources and such traditionally state areas as health and safety. Machine radiation sources and radium, for example, are not covered in the Atomic Energy Act of '54 and are considered within the domain of the states—where Southern state officials are anxious to keep them.

Regional Council Set Up: Drafting body for the interstate compact and guiding force behind the South's drive for a unified approach to nuclear energy development is the Regional Advisory Council on Nuclear Energy (RACNE).

RACNE is composed of representatives of the member states (*see table*) and major economic groups in the region.

In '55, the Southern governors' conference sponsored a regionwide study project on nuclear energy in the fields of atomic power, general industrial applications of the atom, manpower, education, medicine and public health.

To implement recommendations resulting from the study, the '56 governors' conference set up for two years the nation's first (and still only) publicly supported, nonfederal interstate atomic development council. So far, 11 of the 16 member states have created state advisory bodies to work with the council, and the life of RACNE has been extended through '60 with the recommendation that each of the 16 states contribute $3,500/year to its support.

In October, the council voted to name a three-governor committee to work closely with it.

The council's program deals particularly with problems that cut across state lines, including water and air pollution, transportation, disposal of atomic wastes, health and safety of workers, insurance and conservation and use of natural resources.

—16-State Breakdown

New Users Jan. 1—May 31, '58	*Percent Increase*
7	17.0
3	12.5
1	8.0
5	9.0
7	20.0
1	3.0
3	6.0
7	13.5
0	0.0
5	10.0
4	7.0
1	9.0
7	13.0
26	13.0
7	11.0
3	11.0
87 Avg.	11.0

Nuclear Growth

First Order of Business: Among the first projects handed RACNE by the governors was to find a way to maintain state authority and avert complete federal control of peaceful atomic development. Suggested approach: a compact among the states.

The council reported that action should be taken during '59, but the governors wanted immediate action. They directed the council to immediately draft a plan that could be submitted to the states for ratification. The governors hope that the compact, actually prepared by RACNE's Executive Vice-Chairman Frank Norton, a Dallas attorney, can be presented for U.S. Congressional approval in '59, under Article I, Section 10 of the Federal Constitution.

Manpower Needs: RACNE considers manpower needs its most pressing problem. To meet those needs the council has:

(1) Reached an agreement with Oak Ridge Institute of Nuclear Studies, which assures continued cooperation throughout the South in educational projects among the 37 Southern member schools in the institute.

(2) Helped open a portion of Atomic Energy Commission's Savannah River plant for education and training purposes.

(3) Stimulated and coordinated

Tris(hydroxymethyl)aminomethane. Unique! The only tri-hydroxy molecule commercially available having a primary amine group. This highly reactive nitroparaffin derivative has great potential in chemical synthesis. In manufacture of resins, drying oils, surface-active agents. In preparation of cosmetic creams, textile specialties, cleaning compounds, etc. Evaluate Tris Amino. Write for Samples and Technical Data.

PROPERTIES

Molecular Weight	121.14
Boiling Point, °C	219 to 220 at 10mm
Melting Point, °C	171 to 172
pH of 0.1M Aqueous Solution at 20°C	10.4
Solubility in Water at 20°C, g/100 ml	80

CSC CHEMICALS FOR INDUSTRY

ALCOHOLS
Methanol Butanol
Ethyl Alcohol

AMINES AND AMMONIA
Ammonia, Anhydrous and Aqua
Ammonium Nitrate, Solid and 83% Sol.
Methylamines
Benzyltrimethylammonium Chloride
Hydroxyethyltrimethylammonium-bicarbonate

ESTERS
Amyl Acetate Butyl Acetate
Butyl Lactate Butyl Stearate
Dibutyl Phthalate Ethyl Acetate
Tributyl Phosphate

NITROPARAFFINS
Nitroethane 2-Nitropropane
Nitromethane 1-Nitropropane
Alkaterges Diamines
Aminohydroxy Compounds
Nitrohydroxy Compounds
Chloronitroparaffins

PHARMACEUTICALS, BULK
Bacitracin
Riboflavin, U.S.P. and U.S.P., R.S.

OTHER CHEMICALS
Acetone Formaldehyde
Pentaerythritol

COMMERCIAL SOLVENTS CORPORATION
260 Madison Avenue, New York 16, New York

ATLANTA, GA. • BOSTON, MASS. • CHICAGO, ILL. • CINCINNATI, OHIO • CLEVELAND, OHIO DETROIT, MICH. • HOUSTON, TEXAS • INDIANAPOLIS, IND. • KANSAS CITY, MO. • LOS ANGELES, CALIF. • LOUISVILLE, KY. • MEMPHIS, TENN. • MILWAUKEE, WISC. • MINNEAPOLIS, MINN. NEWARK, N. J. • NEW ORLEANS, LA. • PHILADELPHIA, PA. • PITTSBURGH, PA. • PORTLAND, ORE. ST. LOUIS, MO. • ST. PAUL, MINN. • SAN FRANCISCO, CALIF. • STERLINGTON, LA. • IN MEXICO: COMSOLMEX, S.A., MEXICO 7, D.F. • IN CANADA: McARTHUR CHEMICAL CO., MONTREAL, QUE.

a program whereby departments of education in the various member states can participate in a plan (already in operation by the National Science Foundation and AEC) that provides special summer training in science instruction and teaching techniques for selected teachers.

'Grassroots' Program: In addition to its efforts to solve the manpower problem, RACNE is seeking through its "grassroots" program to promote public recognition of the benefits derived from peaceful use of the atom. Under the program, the council has set up speaker bureaus and publishes a periodical, "Atomic Horizons," in the South.

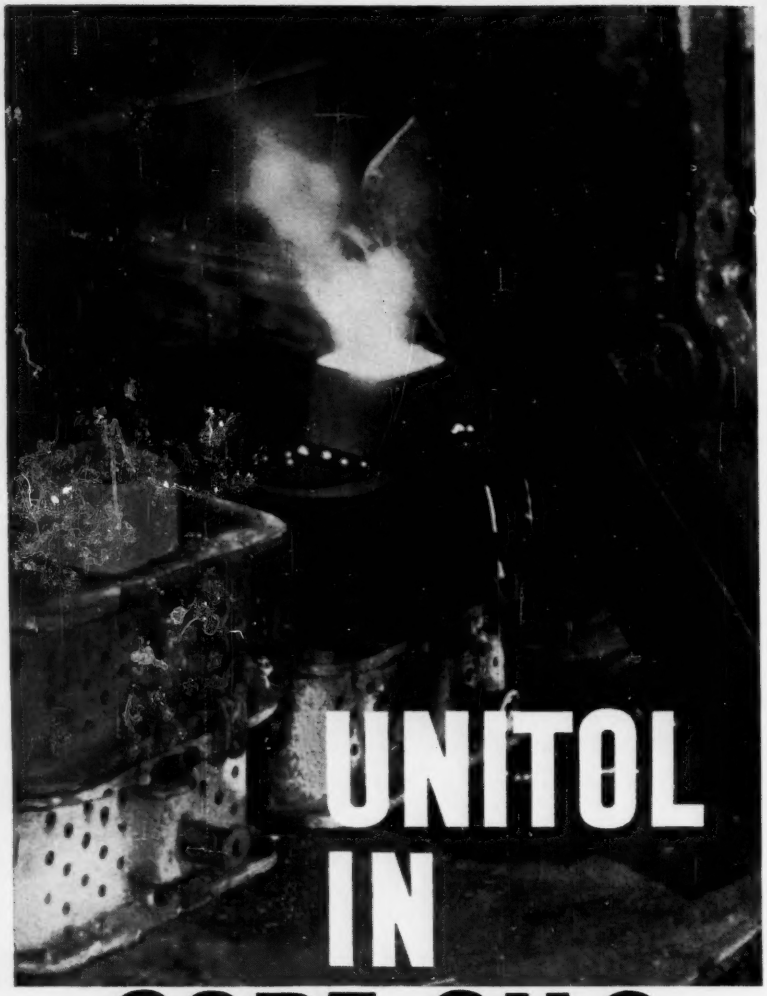
In the area of general industrial applications, RACNE has sparked "how-to" courses for industry, showing regional industrial and manufacturing organizations how to make the best use of radioisotopes. Three workshops have been held so far—in South Carolina, Florida and Texas.

Supports Private Development: Also in the industrial field, the council strongly supports private capital development of nuclear energy where possible. The council backed a proposed $12-million materials-testing reactor to be built by private industry in North Carolina to serve Southern firms. The project received AEC go-ahead in April, is expected to be operational in the spring of '60.

RACNE has encouraged discussions aimed at setting up a new agricultural research program to augment work being done at Oak Ridge and various Southern schools. Among the more important considerations is the possibility of a forest research program—using nuclear materials in experiments. This is particularly significant in view of the rapidly expanding lumber and pulpwood industry in the region.

Model for Others: Already, other regions have expressed interest in following RACNE's example. The big question is whether other regions have the necessary unifying characteristics that have served to stimulate the Southern project.

The Southern states know they must cooperate extensively if they are to achieve their goal, putting the atom to work for what they confidently feel will be the "economic emancipation of the South." They're relying heavily on RACNE to do the job.



CORE OILS
helps
make
finer castings

Foundry cores made with *UNITOL* tall oil products are economical and have high baked strength and excellent porosity. Core binders made from *UNITOL* are entirely organic and burn out completely facilitating the cleaning of core cavities.

UNITOL products are cutting costs in a wide variety of applications. Write today for information, samples and prices.

unitol TALL OIL union camp PRODUCTS

Chemical Sales Division
UNION BAG-CAMP PAPER
CORPORATION
233 Broadway, New York 7, N. Y.

Pollution Indictments

Holding to its earlier threats of criminal action against oil well operators that pollute streams in Green County, Kentucky, the state's water pollution control commission has moved fast.

On the basis of the commission's complaints, a special grand jury has indicted 316 oil producers and landowners. In 110 separate indictments, it charges them with causing the pollution of public waters with salt water. Among the defendants are a county judge, county attorney, district health administrator and a city policeman.

The case arose after the commission set up requirements for drillers to qualify for a permit to dispose of salt water and gave operators 30 days in which to file notice of compliance. It will most likely be tried in the next regular term of circuit court, opening in late March.

Court Has Dues Case

Management is watching a case now before the Georgia supreme court—and quite likely to reach the U.S. Supreme Court—that may decide whether employees can be forced to join a union that uses dues to pay for political purposes disapproved by employees.

In Macon, Ga., Superior Court Judge Oscar Long recently signed a court order that, in effect, says railroad employees cannot be forced to join such a union.

A suit was started in 1953, when six Southern Railway System employees sued the railroad and 15 operating rail labor unions, claiming that under the railroad-unions contract they had to join a union within 60 days of employment or be fired. They complained that their dues would be used "to support, propagate and foster ideological and political doctrines" they disagreed with.

Judge Long originally ruled that his court had no jurisdiction over the case; but on appeal to the Georgia supreme court, his decision was reversed, paving the way for his recent order. The Georgia supreme court, in a unanimous decision, ruled that "we do not believe one can constitutionally be compelled to contribute money to support ideas, politics and candidates he opposes. We believe his right to immunity from such exactions is superior to any claim the union can make upon him."

Both sides say they will take the case to the U.S. Supreme Court regardless of the Georgia court's decision on this appeal.

In a '56 decision, the U.S. Supreme Court held that an employee can be made to join a union under a union shop agreement, if his dues are to be used only for collective bargaining.

KEY CHANGES

H. Schuyler Cole to vice-president—paper products division, Procter & Gamble Co. (Cincinnati).

William H. Koop to general sales manager, Tect, Inc. (Northvale, N.J.), safety solvents and detergents manufacturer.

J. T. Black to general sales manager, Polymer Corp. Ltd. (Sarnia, Ontario, Can.).

Hugh Burdette and **E. L. Green, Jr.,** to directors, Godfrey L. Cabot (Boston).

I. K. MacGregor to vice-president—staff operations, American Metal Climax (New York).

Lauchlin M. Currie to vice-president and head of Atomic Energy Division, Babcock & Wilcox Co. (New York).

E. Colin Baldwin to president, Sherwin-Williams Co. of Canada Ltd. (Montreal), subsidiary of Sherwin-Williams Co. (Cleveland).

Alex Guerry, Jr., to president; **Paten Abshire** to director; Chattanooga Medicine Co. (Chattanooga).

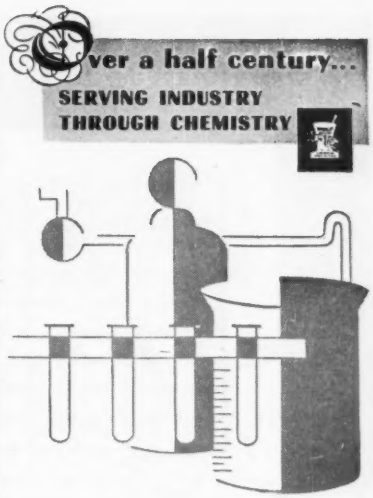
A. L. Antonio to vice-president—Chemical Division, Aerojet General Corp. (Azusa, Calif.), subsidiary of General Tire & Rubber Co.

William P. Smith to director, The Glidden Co. (Cleveland).

James M. Knox to president, Research-Cottrell (Bound Brook, N.J.).

RETIRED

Carl W. Hedberg as president, Research-Cottrell (Bound Brook, N.J.).



NATURAL
GUMS

A full line—one for every use

GUM ARABIC—Many uses: in textiles, confectionery, pharmaceuticals, lithography, matches, adhesives. Foam stabilizer in brewing. Available in whole, granular and powder form or in purified syrup form. Standard in viscosity and solid content.

IRISH MOSS—Used where highly soluble viscous mucilage is desired, such as cold water paint, shoe polish, leather and textile sizing. In natural, bleached or purified powder forms.

GUM KARAYA—A thickener in printing, finishing and sizing. Other uses: in pharmaceuticals as an emulsifier; in ceramic clays, candy and ice cream as a binder. Available in natural or powder form.

LOCUST BEAN GUM—A thickening agent for: textile printing and finishing, for food and pharmaceutical products, toilet preparations and cosmetics. Swells in cold water to give an extremely viscous solution. Also known, in a prepared solution, as Luposol (digested and filtered with all specks, flakes and other foreign matter removed).

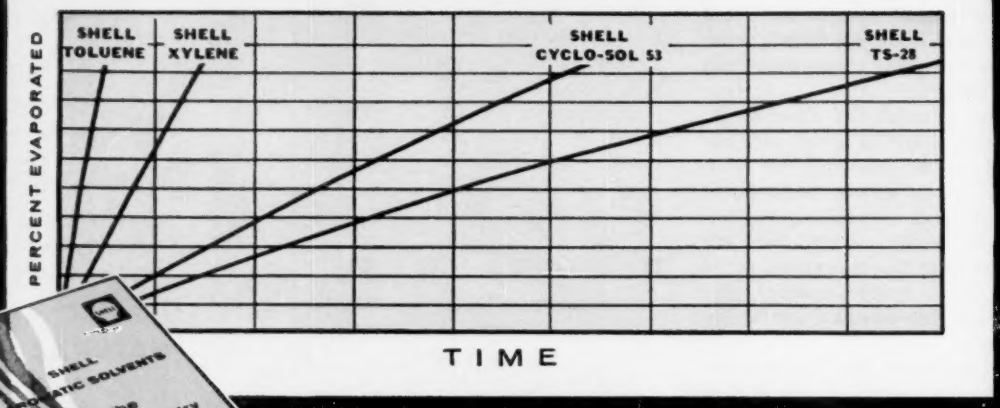
GUM TRAGACANTH—Used in foodstuffs, textiles, pharmaceuticals, cosmetics, dentifrices, etc., wherever a thickening agent is necessary. All physical forms available: cracked, clean powder and filtered solutions.

We are direct importers of natural gums and always have large stocks on hand. Please write for SPECIAL BULLETINS—no obligation, of course.

JACQUES WOLF & CO.
Chemicals PASSAIC, N.J.

Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

For industrial finish formulation...



SHELL AROMATIC SOLVENTS

with a variety of evaporation rates

Typical properties are given in the booklet shown. Write for a copy.

SHELL TOLUENE

. . . for applications where very fast evaporation and high solvency are required.

SHELL XYLENE

. . . has an exceptionally narrow distillation range, is slower drying than toluene.

SHELL CYCLO-SOL* 53

. . . an excellent solvent with higher flash point and slower evaporation rate than xylene. Recommended for baking finishes and flow coating.

*Registered Trademark

SHELL TS-28 SOLVENT

. . . a still slower drying aromatic concentrate of medium high solvency. Recommended for baking finishes and flow coating.

These Shell solvents cover a very wide range of evaporation rates. Their individual characteristics satisfy specific requirements in a great variety of formulations.

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK

100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

SHELL

Technology
Newsletter

CHEMICAL WEEK
December 27, 1958

The first plant to use Amoco's air-oxidation process for phthalic acids is in operation—at Mitsui Petrochemical Industries' plant at Iwakuni, Japan. Amoco bought the process from Scientific Design, which engineered the Japanese plant. And SD reports the startup was accomplished in just over one year from the date of the signing of the agreement.

SD also reports it has started design work on a plant for Maruzen Oil Co., Ltd., in Japan, as well as one for ICI in Great Britain. There's no word as yet from Amoco's plant, which should be close to the startup stage.

•

Nuclear explosions to help wrench oil from oil shale will come up for discussion at a meeting next month in Dallas, Tex. (Jan. 6-7). The Atomic Energy Commission and the Bureau of Mines will explore the possibilities of the idea at a meeting with chemical and petroleum industry representatives. Preliminary discussions have indicated the technique might have considerable merit. The nuclear explosion would break up large quantities of shale, which would be set afire to permit recovery of oil.

AEC is already cooperating with industry in detonating salt deposits (*CW Technology Newsletter, Nov. 15*). There are plans also to try nuclear blasts to extract oil from the Canadian Athabaska oil sands (*CW Technology Newsletter, Nov. 1*).

•

The Russians are claiming a new process to make formaldehyde from natural gas. No details on the process are available, but the Soviets say their process halves production costs. Construction of a big plant employing the process is said to be under way at Tataria, near rich methane deposits on the bank of the Volga River.

•

Two new chemicals for treating victims of plutonium poisoning have been discovered by researchers at Argonne National Laboratory (Lemont, Ill.). The compounds are chelating agents, which trap plutonium in water-soluble complexes that can be easily eliminated from the body. The agents—which have proved successful in animal tests—are diethylenetriamine pentaacetic acid (DTPA), and 2,2′-bis-[di(carboxymethyl)amino diethyl ether] (BAETA). Both may well prove valuable in treating humans who have accidentally ingested or otherwise been poisoned with plutonium.

While some other materials—zirconium citrate and EDTA, for example—are useful in treating plutonium poisoning when treatment is begun within eight hours after exposure, DTPA and BAETA are useful even when treatment is delayed for several days.

•

The amino acid, cysteine, has also found a new antiradiation use. Argonne researchers find that mice are protected against gamma rays and

fission neutrons by an injection of cysteine before radiation; subsequent therapy includes use of streptomycin and bone marrow.

•

Addition of polyester fiber to cellulose-fiber paper stock is being tested by the National Bureau of Standards. The NBS evaluation was carried out for the Army Engineer Research and Development Laboratories; such additions increase dimensional stability of map paper. However, the addition of polyamide fibers gives such papers low dimensional stability, NBS reports.

•

Chemical companies and aircraft firms with a strong foothold in missile propulsion rank high on the Pentagon's latest roster of leading military research and development contractors.

The new listing covers fiscal 1958, ending last June 30. North American Aviation ranks as second largest R&D contractor for the year, with $288.3 million worth of awards. But this sum includes the company's aircraft and electronic projects—as well as rocket propulsion. General Electric is first with $302 million worth of R&D contracts for the year.

Leading chemical contractors: Aerojet General Corp., $121.6 million; Thiokol Chemical, $33.4 million; Olin Mathieson, $12.4 million; Eastman Kodak (includes optics and electronic projects), $12.1 million; Marquardt Aircraft, $11 million; Hercules Powder, $10.5 million; Vitro, $10.4 million; Callery Chemical, $6.3 million; Astrodyne, $2.1 million; Phillips Petroleum, $2 million; Rohm and Haas, $1.9 million.

•

Uranium colors for ceramics are back in production this week at Vitro Manufacturing Co. (Pittsburgh, division of Vitro Corp. of America) after an 18-year suspension of nonnuclear uranium products. The reinstated pigments—principally oranges, yellows and greens for high-temperature glazes—are now being made from depleted uranium hexafluoride (containing only about 0.0022% U-235) released last June by AEC to licensed processors.

Other color manufacturers, such as Ceramic Color & Chemical Manufacturing Co. (New Brighton, Pa.), B. F. Drakenfeld & Co., Inc. (New York) and Harshaw Chemical Co. (Cleveland), have been processing depleted uranium material on a limited basis, but reserve decision on the resumption of full-scale production. Reason: overstrict licensing requirements are discouraging many customers from obtaining licenses to purchase and use uranium colors.

•

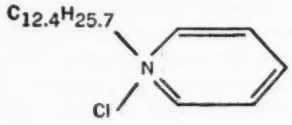
A new instrument for measuring the adhesion of organic coatings to a substrate has been developed by Shell Development Co. (Emeryville, Calif.). Called the "blister adherometer," it injects liquid (mercury or silicone oil) under pressure between the coating and the surface being coated. Pressure is correlated to the volume of liquid injected. From this, the energy needed to overcome the adhesion of the coating is calculated.

BRIEFS

on a quaternary ammonium compound that kills germs while it cleans . . . on some easy ways to get benzyl and benzoyl groups for your reactions . . . a manual on handling caustic soda

This detergent kills germs

You may be missing something big if you haven't looked lately at the properties of *lauryl pyridinium chloride.*



We produce this as a technical-grade mottled tan semi-solid, containing 85.0% min. alkyl pyridinium chloride calculated as C_{12}. It is greasy or soapy to the touch, and lathers freely in water.

Surface tension of a freshly prepared aqueous 0.01% solution at 25° C is 55 dynes/cm; of a 0.1% solution, 45 dynes/cm; of a 0.5% solution, 33 dynes/cm. The surface tension of dilute solutions becomes even lower during aging.

In aqueous solutions more dilute than .01N, the solute is molecularly dispersed. In stronger dispersions, the lauryl pyridinium cations are aggregated into colloidal micelles, but the solutions look clear to the naked eye.

Indications are that, like other quaternary ammonium compounds, lauryl pyridinium chloride has good germicidal properties. It is a potent bactericide against gram-positive and gram-negative microorganisms.

Where can you use it? At present, a major use is in wetting and lubricating the tiny spinnerette holes through which viscose squeezes just before it becomes rayon.

Some other places where you might put it to work, if your field of interest is:

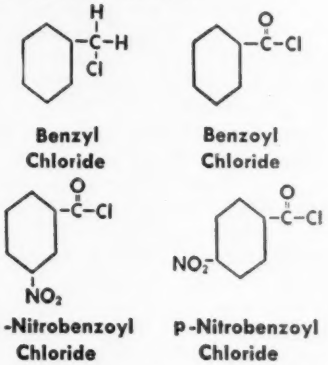
Textiles—for cleaning fibers; in water-soluble lubricants; as wetting agents, color modifiers.

Pharmaceuticals—as industrial germicides; in disinfectants, preservatives; antiseptic soaps.

Agriculture—in insecticides, fungicides, horticultural sprays.

Elsewhere—intermediate for foam-resistant compounds; general cationic emulsifying, dispersing and wetting agent; photosensitivity modifying agent; leveling agent in polishes and waxes; lubricant for preparation of hydrophobic surfaces to promote dropwise condensation.

As an exploratory starting point, why not check the coupon for a data sheet on this product? *If you'd like an evaluation sample, please write us on your business letterhead.*



Four versatile aromatic chlorides

These Hooker aromatic compounds give you easy, practical ways of putting benzyl, benzoyl, and nitrobenzoyl groups into organic compounds, particularly through Friedel-Crafts reactions.

Each of these compounds will undergo other reactions to produce a variety of useful products.

All four compounds are high-quality chemicals. On two of them—*meta-* and *para-*nitrobenzoyl chloride—Hooker is the only brand available in commercial quantities.

You can order as little as a 5-gallon container of these compounds, or as much as a carload.

If you'd like to know more about the specifications and physical and chemical properties of these compounds, check the coupon for technical data sheets.

40-page manual tells how to handle caustic soda

Written for engineers, this 40-page Hooker manual sums up newest techniques for handling and storage of liquid caustic soda.

Contents include detailed diagrams of equipment; a section on materials of construction; recommendations for unloading, diluting, piping, and storage; and a section on safety precautions and first aid.

For a copy, check the coupon for Hooker Bulletin 102, *Caustic Soda Engineering and Handling Guide.*

For more information on chemicals mentioned on this page, check here:

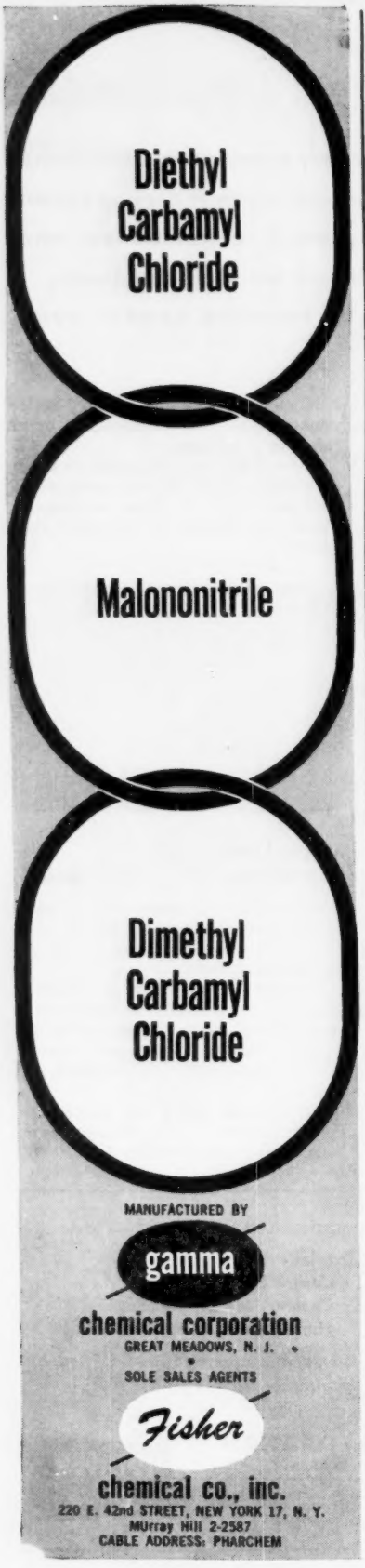
- ☐ Lauryl Pyridinium Chloride
- ☐ Benzyl Chloride
- ☐ Benzoyl Chloride
- ☐ m-Nitrobenzoyl Chloride
- ☐ p-Nitrobenzoyl Chloride
- ☐ Caustic Soda
- ☐ Caustic Soda Engineering and Handling Guide, Bulletin 102

Clip and mail to us with your name, title, and company address. (*When requesting samples, please use business letterhead.*)

HOOKER CHEMICAL CORPORATION
712-2 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

Sales Offices: Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B.C.

HOOKER CHEMICALS PLASTICS



Borohydrides' Cleanup Bid

Metal Hydrides is introducing sodium and potassium borohydrides in pellets and water solution.

A new important use: in oxo-alcohol manufacture—to clean up color-forming traces of aldehydes.

Potential applications: removal of aldehydes, ketones, peroxides in the processing of textiles, pulp and organic chemicals.

This week, Metal Hydrides Inc. (Beverly, Mass.) is marketing pelletized sodium and potassium borohydrides, its second new offering of the month aimed at attracting new business for these exotic chemicals—the sodium compound is currently being used as an intermediate for boron fuels (CW Technology Newsletter, May 24). The other new product: a stabilized water solution of sodium borohydride, featuring a sharply cut price.

The pellets, used as fixed-bed reagents, offer a new, specific way to reduce carbonyl groups (aldehydes and ketones) and peroxides. Other forms of the borohydrides, supplied by MHI and Callery Chemical Co. (Pittsburgh), have already proved their specific reducing ability as reagents for steroid production in the pharmaceutical industry. Now, MHI says, more industries will be able to try them for many impurity problems in a wide range of organic chemicals, including acrylonitrile, styrene, glycol ethers, pentaerythritol, sulfonates, amines and unsaturated compounds.

A big new user of the borohydrides' reducing power is the oxo-alcohols industry. Since the bulk of oxo-alcohol production goes into plasticizers, the alcohols must be free of carbonyl groups that tend to build up color in otherwise clear plastics. Similar color problems exist in the textile and pulp industries, but while borohydrides are now accepted in oxo-alcohol manufacture, they're still under test in the other industries.

The stabilized water solution—called SWS — is aimed at aqueous media applications, may also be used with various organic compounds to take advantage of its low price: $15/lb. of contained sodium borohydride, compared with a minimum of $33/lb. for the dry solid compound. Key to its low price: it is obtained as a sidestream product of the regular manufacturing process, thus eliminating several separation and drying steps.

Widening Use in Oxos: Nonetheless, solid forms of the borohydrides are in wider use now, because of their job as a carbonyl cleanup agent in the manufacture of oxo-alcohols. Amoco Chemicals Corp. (Chicago) now acknowledges that it has been using a borohydride process for over three years to purify its alcohols. Amoco's use of the process dates back to its discovery in the Whiting, Ind., research laboratories of parent firm Standard Oil Co. of Indiana. The other oxo producers — Enjay Co. (New York), Union Carbide Chemicals Co. (New York), Gulf Oil Corp. (Pittsburgh), Texas Eastman Co. (Longview, Tex.) — are also believed to be using borohydride cleanup, or at least studying it very carefully. But they are all silent on the subject.

A point that may help explain the producers' reticence is an unsettled patent situation. Amoco holds European patents on the process, expects its first U.S. patent to issue soon.

Little Goes a Long Way: Although troublesome, the carbonyl content in oxo-alcohol is actually quite low, and very small amounts of the borohydride are needed. Typical requirement: 1-5 lbs. of sodium borohydride to clean up 10,000 lbs. of alcohol. However, the price tag on the borohydrides brings their market potential up to a sizable dollar volume.

In some applications, it is cheaper

to use the potassium compound, which lists at $13.50/lb., compared with $33/lb. for sodium borohydride. But the price differential is not as significant as it appears, since about 40% more potassium borohydride is needed to do the same job, due to its greater molecular weight. And the sodium compound has decidedly better solubility characteristics, making it more efficient for most applications.

Process and Price Choice: The new pelletized material offers the option of using the borohydrides as continuous, in-stream reducing agents rather than as batch additions to the finished product. But this pellet feature is available at a premium, ranging from $1 to $2.50/lb. over the regular price.

Although SWS's water medium limits its use in organic processes, the availability of sodium borohydride at $15/lb. marks the first time it has been offered at such a low price, and it augurs further cuts. Metal Hydrides believes the price can be reduced to $5/lb. or less. Ultimate limiting factor would seem to be the cost of the raw materials — sodium, hydrogen, methanol and boric acid — over $2 worth of which is required to make a pound of sodium borohydride.

Still Exploring: Big new uses for the borohydrides probably still hinge somewhat on the achievement of the lower prices. At least one university and two private research firms are working on a method of using borohydrides in textile finishing to prevent coloring with age. The pulp and paper industry is also studying the use of borohydrides for preventing color reversion in paper. Economic justification of borohydride use here is yet to come, however.

A combination of reduced cost, plus greater knowledge of how to use the borohydride's special reducing power, will be the key to its wider use. And projects now under way are designed to provide both parts of the borohydride success combination.

•

Diazomethane: A cheap method of making diazomethane is a new development of Phrix-Werke AG. (Hamburg, Germany). Nitrosyl chloride is reacted with a three-to-fourfold excess of monomethylamine in a cold ether medium to form nitrosomethylamine and hydrochloric acid. Diazomethane in a yield of 45-50% (based on nitrosyl chloride) is produced by neutralizing the reaction mixture.

comes with your order for

TAR BASES FROM KOPPERS

Pyridine, picoline, lutidine, collidine, quinoline and 15-18 tar bases; all are available in quantity from Koppers in tank cars, trucks, or 55 gallon containers.

When you order tar bases from Koppers, you get the benefit of broad experience in use-technology, too. From work with users of these chemicals over many years, your Koppers Coal Chemicals Specialists can give you sound advice on processing techniques, purities and other characteristics that will save you time and money.

Backing up these knowledgeable field representatives is the Koppers Technical Department, probably the most experienced group in the industry on coal chemicals and their applications. All told, you'll be time and money ahead when you place your orders for tar bases with Koppers. For full information, write Koppers' Tar Products Division, Pittsburgh 19, Pa.

KOPPERS

KOPPERS
COAL CHEMICALS

How do you take the fear

When a steer is shipped, he is frightened by noise, handling, change of environment. He often refuses to eat and drink. He becomes more susceptible to infection . . . may come down with shipping fever which kills many animals and downgrades the quality of beef from those that live.

Today, cattlemen have found a way to overcome the problem. They give tranquilizers to beef cattle.

Nobody is sure exactly how the tranquilizers work. But it is generally believed that they alter the concentration of certain neurohormones and thus affect the transmission of impulses across a synaptic junction. Stimuli which pass through these junctions are "toned down" before they reach the higher cortical centers.

The net effect of all this is more and better beef for your table. It has been estimated that millions of additional pounds of beef per year may be made available by this treatment.

There are several types of cattle tranquilizers; some are injected, some are administered orally. A popular one is a derivative of phenothiazine, a drug whose origin can be traced to benzene, one of the USS Chemicals. For more information on USS Benzene, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

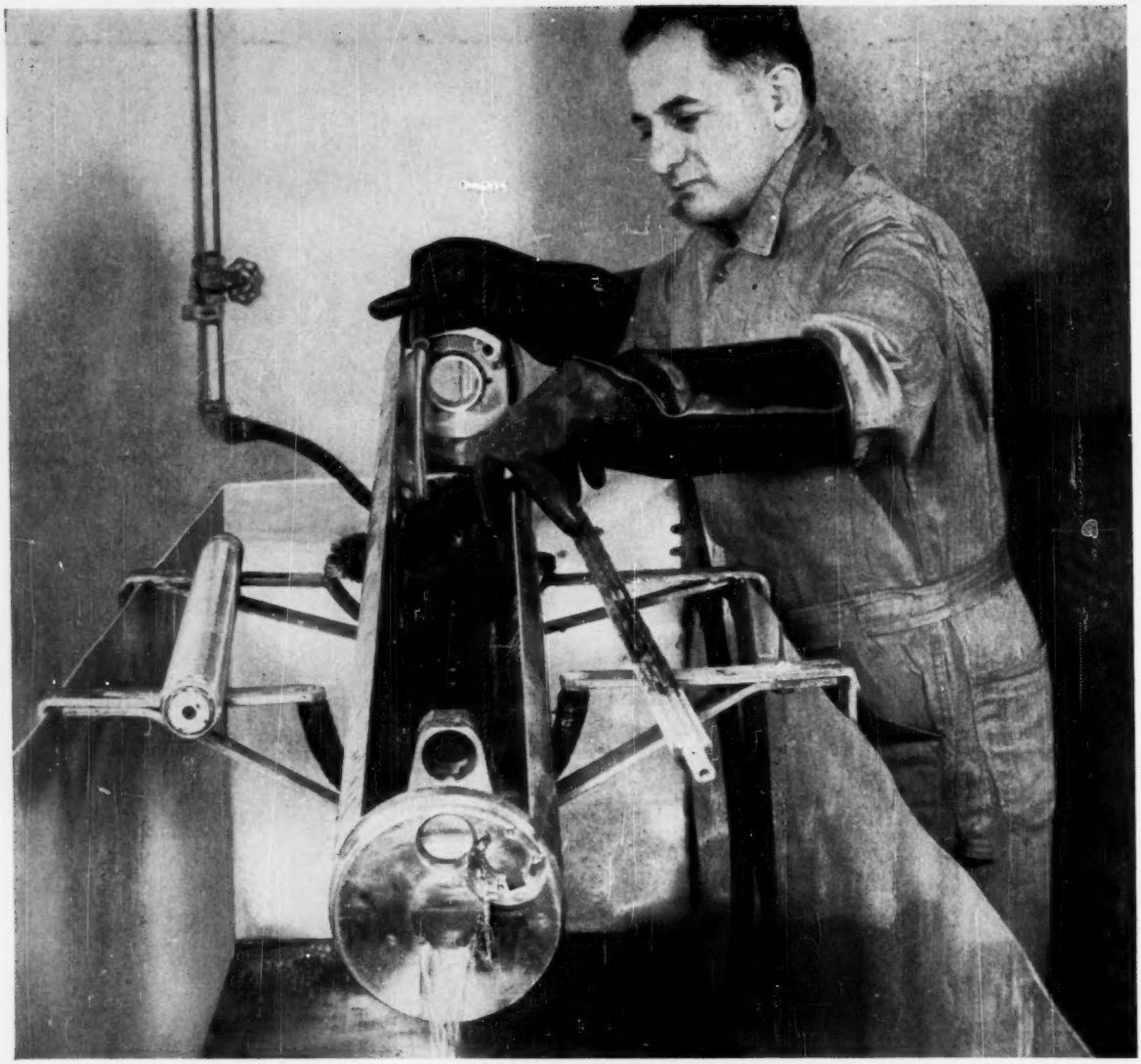
USS is a registered trademark

USS Chemicals

Sales Offices in Pittsburgh, New York, Chicago, Salt Lake City and Fairfield, Alabama

out of a steer?

BENZENE · TOLUENE · XYLENE · PHENOL · CRESOL · CRESYLIC ACID · NAPHTHALENE · CREOSOTE · PITCH · PICOLINE · PYRIDINE · AMMONIUM SULFATE · AMMONIUM NITRATE · ANHYDROUS AMMONIA · NITRIC ACID



A control rod drive housing being rinsed at Fairchild Camera and Instrument Corp. Radiological Decontamination Laboratory, Syosset, L. I., N. Y.

Ion exchange helps save "hot" reactor mechanisms from the nuclear cemetery

When valves, pumps, heat exchangers and other parts used in or with nuclear reactors became sluggish or clogged, they used to be taken out and buried in the ground because they were radioactive . . and replaced by new parts. This ran into money. A single control rod drive mechanism, for example, costs $30,000.

Now, radioactive contamination is actually scrubbed off and rinsed away so that parts can be refurbished, reassembled and re-used . . at a fraction of their replacement cost.

Radioactive rags, brushes and cleaning fluids used for decontaminating are put in special containers and disposed of through licensed agencies.

But the problem of what to do with the contaminated rinse water is easily solved at Fairchild by their Permutit Nuclear Purifier. Each refill of 3 cubic feet of Permutit ion exchanger resin in this unit safely decontaminates thousands of gallons of rinse water!

Other nuclear applications where Permutit ion exchange is employed: concentration of uranium from ore, demineralizing reactor coolant water, treatment of radioactive wastes and purification of heavy water.

Permutit's nuclear experience is at your service. Write to the Permutit Company, Dept. **CW-9** 50 West 44th Street, New York 36, or Permutit Company of Canada, Ltd., Toronto 1, Ontario.

PERMUTIT®
rhymes with "compute it"
A DIVISION OF PFAUDLER PERMUTIT INC.
Water Conditioning
Ion Exchange • Industrial Waste Treatment

Market Newsletter

CHEMICAL WEEK
December 27, 1958

Phthalic anhydride with a 17¢/lb. price tag is a lot closer this week. Amoco Chemicals, which caused a flurry in the trade when it announced the lower price a few months ago (*CW Market Newsletter, Aug. 2*), says it has successfully completed the oxidation step in its new process. (Amoco will produce, at Joliet, Ill., phthalic, isophthalic and terephthalic acids from a mixed xylene stream.)

Other phthalic producers, which have indicated that they will also post a 17¢ tag "when and if" the Midwestern newcomer actually begins commercial delivery, are still biding their time.

Meanwhile, there's new speculation: even if the 17¢ c.l. price (a fat 4¢/lb. under current schedules) materializes, industry-wide, it may not hold for long. Observers say the lower tag would cut phthalic producers' annual gross by millions. And there's also talk that Amoco's final manufacturing cost figures may be higher than first estimated.

At any rate, Amoco will be producing phthalic in first-quarter '59—although no shipping date promises are being made.

•

Formaldehyde prices going up? Chances are that an increase is coming. Demand has been picking up over the last few weeks (*CW Market Newsletter, Nov. 29*), and some marketers are reportedly anxious to reverse some of the hefty reductions (as much as 70¢/cwt. on most grades) that went into effect last May.

But when the hike might come is a big question. If it doesn't occur within the next week or so, consumers will likely be paying current prices until April 1. There's a feeling that any rise now would only brake the better movement being noted in formaldehyde sales.

•

There's more than one potential producer of lithium perchlorate.

American Potash & Chemical tells *CW* it has been making lithium perchlorate in developmental quantities at Trona, Calif., for two and a half years. AP&CC says it "can readily produce this material in commercial quantities" and will do it if the market opens up. Size and location of the plant would depend on the market.

Earlier (*CW, Nov. 22, p. 25*), HEF—joint venture of Hooker Chemical and Foote Mineral—described its abuilding ammonium perchlorate plant at Columbus, Ga., as "the nation's only plant capable of producing lithium perchlorate commercially." Pennsalt's ammonium perchlorate plant at Portland, Ore., is another that can be easily converted to lithium perchlorate production.

•

Davison Chemical is sole U.S. bidder on Japan's order for 3 tons of nuclear-grade uranium (*CW Market Newsletter, Dec. 13*). The Balti-

more firm bid $54/kilo ($25/lb.), Societe Generale de Minerais Brussels reportedly bid $34/kilo, and the Canadian government is said to be offering uranium "free of charge to an agency intending resale at approximately current world prices." The contract award will be made in January.

One explanation of why other U.S. producers aren't bidding: Davison may be the only producer with facilities to reduce ore—for commercial sale—to required purity in this quantity.

•

A near 30% is lopped off isocyanate prices by Allied's National Aniline Division. Price of the firm's basic isocyanate (tradenamed Nacconate 300)—used to make solid urethane rubber, elastomers, coatings—is reduced 50¢/lb., from $1.75 to $1.25/lb. Reason: "increasing sales volume" due to growing use of urethane foams. Simultaneously, price of isocyanate solution (Nacconate 1300-50C)—used primarily in making urethane adhesives—is reduced 14¢/lb., to 86¢/lb.

Du Pont quickly followed suit with identical price cuts on its comparable materials. Organic isocyanate Hylene M is cut 50¢/lb., to $1.25; Hylene M-50 (solution form for adhesives use) is reduced to 86¢/lb., from $1. Prices are for 55-gal. drums, less-than-carload lots. Likewise, Mobay is cutting its Mondur M price 50¢/lb., to $1.25.

•

Sodium chlorate prices will go up ½¢/lb. in 11 Western states Jan. 1 because of "increases all along the line in packaging and handling costs." The new 10½¢/lb. price posted by American Potash & Chemical applies to chlorate packed in steel drums, shipped in carload lots, f.o.b. Henderson, Nev.

Although no price changes for sodium chlorate shipped in bulk or tank car are contemplated now, AP&CC spokesmen leave the door ajar by noting that "sodium chlorate prices have changed little in five years despite steadily rising costs."

There's no immediate move by other producers to follow suit; Hooker, for example, prefers to stay out of the picture "because we aren't very big out there anyway."

Meanwhile American Potash & Chemical is readying its new sodium chlorate plant, at Aberdeen, Miss., for startup soon after the first of the year. The firm will then have a total capacity (including its Henderson, Nev., plant) of 45,000 tons/year.

SELECTED PRICE CHANGES—WEEK ENDING DECEMBER 22, 1958

	Change	New Price
UP		
Geranium oil, Bourbon, cns.	$1.00	$19.00
Vetiver oil, Haitian, cns.	0.75	11.50
DOWN		
Caffeine, U.S.P., anhyd., 100 lbs. or more	$0.40	$2.10
2-Ethyl hexyl acrylate, tanks	0.05	0.40
Mercury, metal, 76 lbs./flask	2.00	220.00

All prices per pound unless quantity quoted.

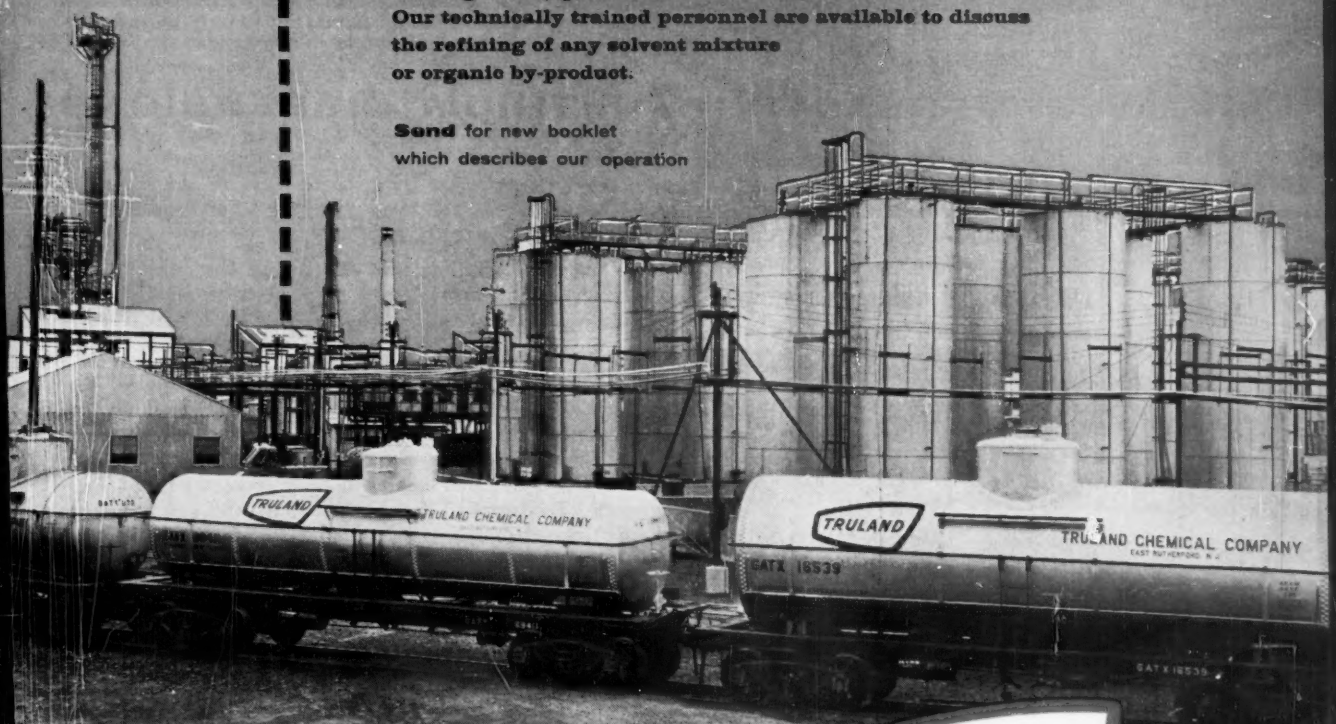
REFINING OF YOUR BY-PRODUCTS

Partial List of Products Processed

- Acetone
- Amyl Acetate
- Amyl Alcohol
- Benzene
- n-Butyl Acetate
- n-Butyl Alcohol
- Butyl Cresols
- Butylene Glycol
- Capryl Alcohol
- Carbon Tetrachloride
- Chlorbenzene
- Chloroform
- Dibutyl Phenol
- Dibutyl Phthalate
- Dicapryl Phthalate
- o-Dichlorbenzene
- Diethanolamine
- Diethylene Glycol
- Dimethyl Phthalate
- Dimethyl Sebacate
- Dipropylene Glycol
- Dodecyl Alcohol
- Dodecylbenzene
- Ethyl Acetate
- Ethylene Dichloride
- Ethylene Glycol
- Ethyl Hexanediol
- Ethyl Lactate
- Glycerine
- Glycol Ethers
- Hexyl Alcohol
- Iso-butyl Alcohol
- Isodecyl Alcohol
- Iso-octyl Alcohol
- Isophorone
- Isopropyl Acetate
- Isopropyl Alcohol
- Methyl Alcohol
- Methyl Amyl Alcohol
- Methylene Chloride
- Methyl Ethyl Ketone
- Methyl Hexyl Ketone
- Methyl Isobutyl Ketone
- Monoethanolamine
- Naphthas
- Nitrotoluols
- Nonyl Phenol
- Octyl Acetate
- Perchlorethylene
- n-Propyl Alcohol
- Propylene Glycol
- Pyridine
- Toluene
- Trichlorbenzene
- Trichlorethylene
- Tricresyl Phosphate
- Triethyl Amine
- Triethylene Glycol
- Trimethyl Borate
- Vinyl Acetate
- Xylene

The facilities and experience of Truland may be employed advantageously for the economical upgrading and disposal of solvent mixtures and organic by-products. Our technically trained personnel are available to discuss the refining of any solvent mixture or organic by-product.

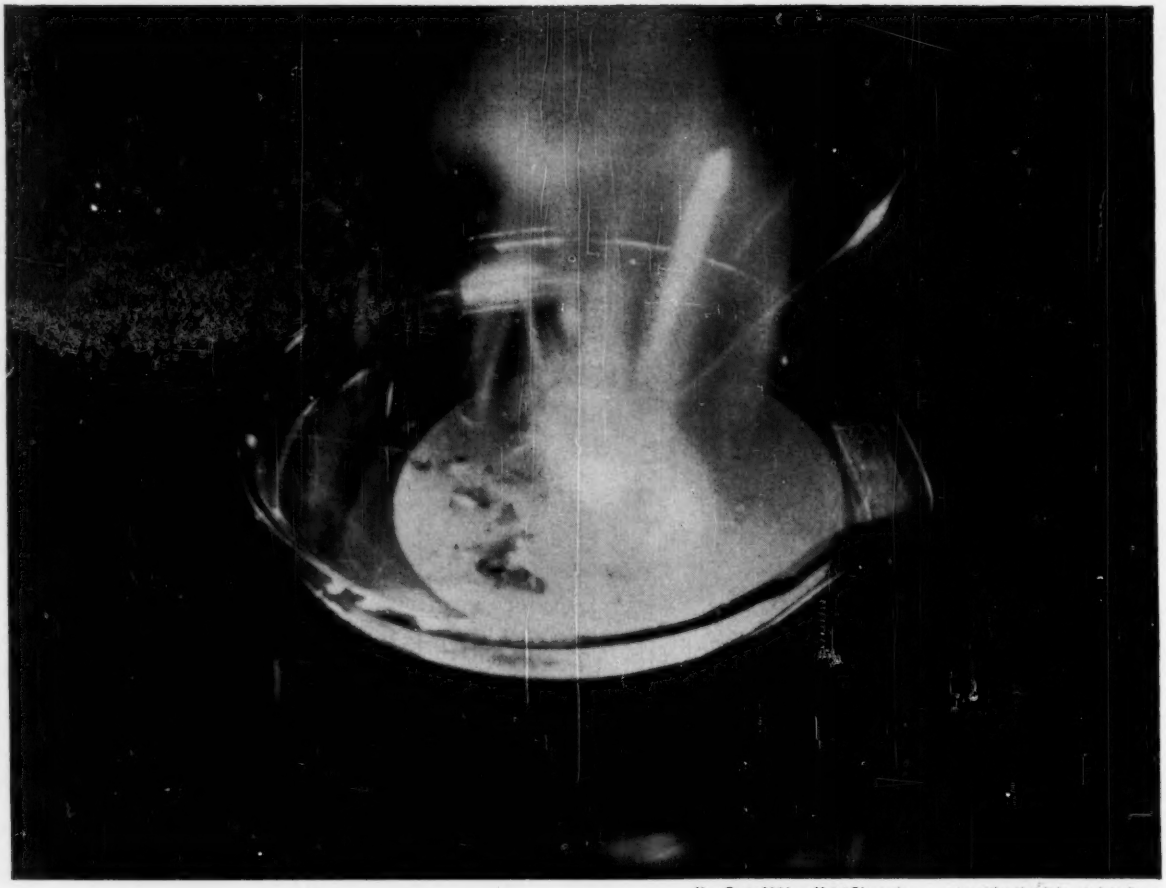
Send for new booklet which describes our operation



TRULAND CHEMICAL COMPANY
EAST RUTHERFORD, NEW JERSEY

TRULAND

DIVISION OF THE TRUBEK LABORATORIES



New Foote Lithium Metal Dispersion . . . so reactive that it bursts into flame on contact with cold water. Light for the photo was supplied by the reaction.

NEW HIGH-REACTIVITY LITHIUM DISPERSIONS

Foote's new form of Lithium Dispersions realizes the high catalytic assets of lithium metal, lithium hydride, and lithium butyl . . . permitting faster, more complete, more controlled reactions.

AVAILABLE IN SEMI-COMMERCIAL QUANTITIES

Lithium Metal Dispersions:
bulk lithium dispersed in hydrocarbons.

Lithium Hydride Dispersions:
lithium dispersion hydrided in the dispersed state in hydrocarbons.

Lithium Butyl Solution:
prepared by the reaction of butyl chloride and lithium metal. Available in various solvents, such as hexane and pentane.

No oxygen, please! Foote's new process prevents the formation of activity-reducing coatings. X-ray analysis indicates that the surfaces of the dispersed metal are *clean* and *free* of hydroxide, carbonate, and oxide.

Small, uniform particle size makes the lithium metal and lithium hydride much more reactive than the usual forms. The small particle size facilitates reaction with the *whole* particle even if insoluble reaction products are formed. The uniform size means that *all* the metal will be used.

A more complete technical description of these new lithium dispersions is just off press. This literature and samples are available upon letterhead request to Technical Literature Department, Foote Mineral Company, 420 Eighteen West Chelten Building, Philadelphia 44, Pennsylvania.

FOOTE MINERAL COMPANY

Lithium Metal, Chemicals, Minerals • Strontium Chemicals • Welding Grade Ferro Alloys • Electrolytic Manganese Metal
Nickel • Steel Additives • Commercial Minerals and Ores • Zirconium, Titanium, Hafnium (Iodide Process) • Silicon Metal

More Chemicals for Compositionboard

Pacific Northwest's mounting requirements for chemicals in the manufacture of particleboard, flakeboard and hardboard*

	'57 Use (All figures in tons)	'59 Demand
Binding materials:		
Phenol-formaldehyde resins	3,222	4,780
Urea-formaldehyde resins	1,810	4,490
Flour glue	160	950
Soya protein glue	15	18.75
Animal glue	37	32
Casein	5	5
Melamine resin	7	32.5
Asphalt	2,050	2,050
Urea	25	32.5
Sizing agents:		
Petrolatums	2,607	3,980
Wax emulsions	575	1,151
Paracol (wax, wax-resin dispersions in water)	20	20
Bitumens	2,350	3,500
Rosin	57	75
Tempering agents, other chemicals:		
Clay	1,368	1,375
Fillers and sealers	trace	50
CTLA polymer (aromatic-type olefinic hydrocarbon)	285	960
Linseed oil	311	400
Alum	475	542.5
Dyes	0.5	6.5
Sulfuric acid	52	78.5
Caustic soda	108	67.3
Cleaning compounds	2.5	2.5
Defoamers	3.2	3.5
Insect retardants	250	320
Fireproofing chemicals	—	25

*Includes chemical needs of 19 producers in Washington and Oregon. There are about 69 producers of these products in the U.S. Requirements in '59 are estimates.

Binding New Markets

Leadership in the U.S. particleboard business—traditionally held by the lumber-based plywood and furniture industries—may quietly slip into the CPI domain in the next few years. Reason: chemical marketers are impatient with the lumber industry's slow-moving product development, will attempt to push particleboard into big markets through chemical technology.

American Cyanamid is the first major U.S. chemical company to move into the particleboard business. Last month, it opened a multimillion-dollar flakeboard plant at Farmville, N.C.; the 40-million-sq.ft./year installation is being operated by Formica, a wholly owned American Cyanamid subsidiary.

Cyanamid's bid for a major share of the flakeboard business has a two-fold base: Formica needs particleboard for use as underlay for its products and Cyanamid makes urea-formaldehyde resin—a major ingredient of flakeboard.

But there's good reason for others in the CPI to take a long, hard look at the particleboard business.

A survey by the Raw Materials Survey group of Portland, Ore., throws some light on the current chemical requirements of the U.S. particleboard—and related products—industry (*see table, above*). And chem-

Another family of useful chemicals from

CARBIDE

ALDEHYDES

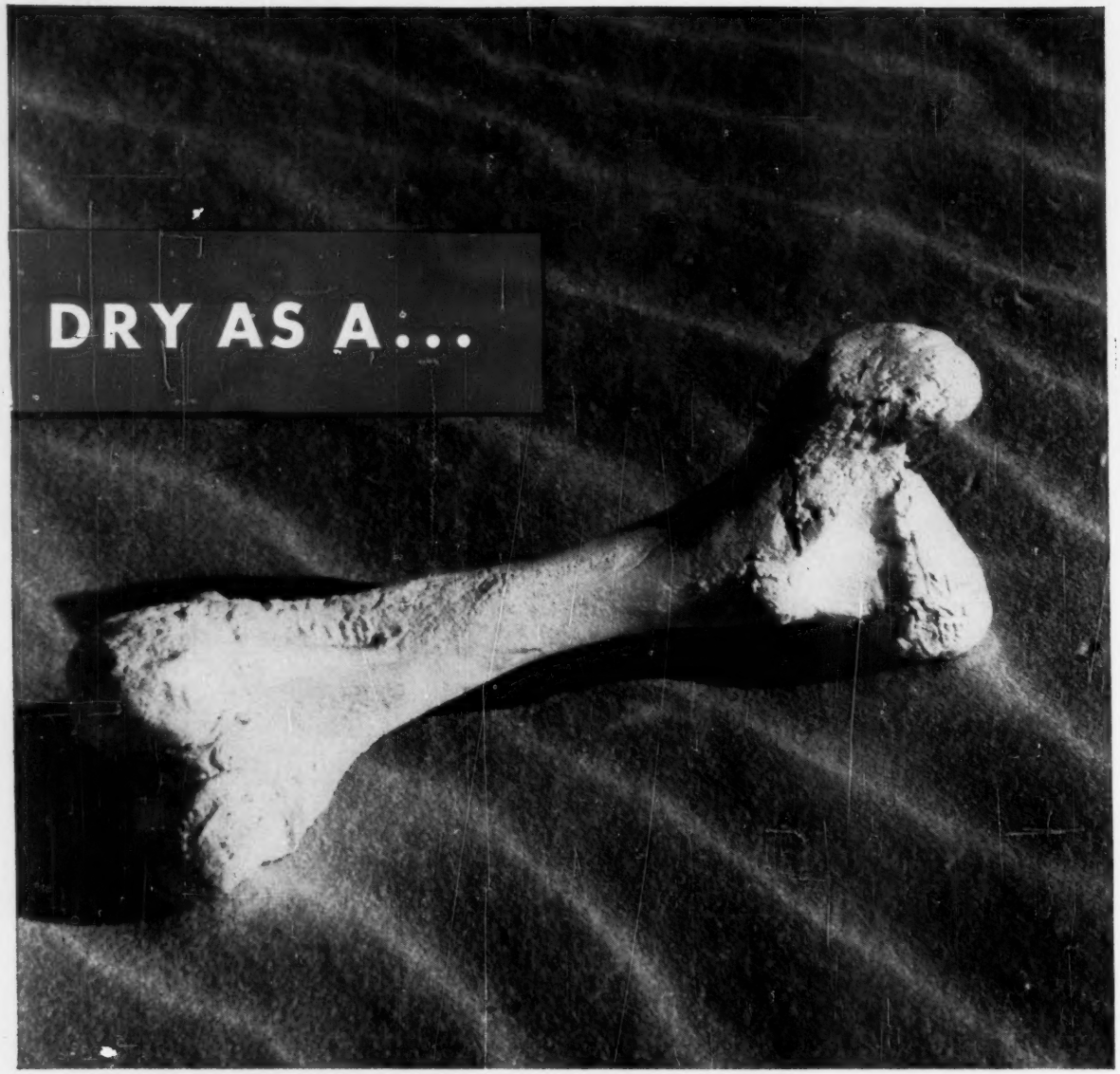
- Formaldehyde
- Acetaldehyde
- Acetaldol
- Paraldehyde
- Propionaldehyde
- Crotonaldehyde
- Butyraldehyde
- 3-Methoxybutyraldehyde
- Isobutyraldehyde
- 2-Ethylbutyraldehyde
- Valeraldehyde
- iso-Pentaldehyde
- 2-Ethylhexaldehyde
- Acrolein
- Methacrolein
- Acrolein Dimer
- 1,2,3,6-Tetrahydrobenzaldehyde
- 6-Methyl-3-Cyclohexane-1-Carboxaldehyde
- Glyoxal
- Pyruvic Aldehyde
- 2-Hydroxyadipaldehyde
- Glutaraldehyde

For a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BJ, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

UNION CARBIDE CHEMICALS COMPANY

DIVISION OF UNION CARBIDE CORPORATION

"Union Carbide" is a registered trade mark of Union Carbide Corporation.



ISOPROPYL ALCOHOL

Versatile Enjay Isopropyl Alcohol . . . employed in the formulation of rubbing compounds, antiseptics, cleaning agents and for general external use . . . is now available in an anhydrous grade as well as in 91% and 95% concentrations.

Fill your requirements with Enjay Isopropyl Alcohol. It's economical and efficient . . . non-potable . . . free of Alcohol Tax Unit regulations. The Enjay Company also offers a complete line of petrochemicals for industrial use.

ENJAY COMPANY, INC., 15 West 51st Street, New York 19, N. Y.
Other Offices: Akron • Boston • Charlotte • Chicago • Detroit • Los Angeles • New Orleans • Tulsa

ENJAY

Pioneer in Petrochemicals

FOR COMPLETE INFORMATION on specifications and performance characteristics of Isopropyl Alcohol, and many other high quality petrochemicals, contact the nearest Enjay office. Shipments will be made from conveniently located distribution points in tank car, truck, or 55 gal. drum quantities.

ical requirements for flakeboard production are indicated in Cyanamid's new operations. Major item used is urea-formaldehyde resin (phenol-formaldehyde resin is used to make hardboard). Operating at full capacity, Cyanamid's plant would consume 8 million lbs./year of urea-formaldehyde (100% dry solids basis, 12 million lbs. on a solution basis).

Second-largest chemical requirement is for wax. Running at capacity, Cyanamid's plant would consume 1.5 million lbs./year of wax on a solid basis (3 million lbs. on a solution basis).

Cyanamid doesn't expect to operate the plant at more than 60% of capacity in '59; that's close to the average 60-70% of capacity operation expected for the industry as a whole.

Major Markets: Total U.S. particleboard capacity in '59 is estimated at 600 million sq.ft./year of products; total '59 output will likely be about 400 million sq.ft. This compares with at least 300 million sq.ft. produced in '58 and 200 million sq.ft. in '57. Incidentally, the U.S. hardboard† industry is considerably bigger, turns out an estimated 2.5 billion sq.ft. of products annually.

About 25% of the total U.S. particleboard capacity is now based on use of virgin greenwood rather than on scrap material from lumbering operations. The following flakeboard makers, for example, reportedly use only greenwood (plant capacities in million sq. ft./year): Formica, 40; Roddis Plywood, Arcata, Calif., 28; Gray Product, Waverly, Va., 20; Columbia Hardboard, Everett, Wash., 15; Carolina Forest Products, Wilmington, N.C., 12; West Virginia Pulp and Paper, Tyrone, Pa., 10; United Wood Products, W. Memphis, Ark., 8.

Chemical requirements of the flakeboard industry will likely expand considerably in the next few years. New types of board to be developed will need termite and fungus inhibitors, fireproofing and waterproofing agents. new resins with which to make boards for exterior use.

Basic Uses: More than 50% of wood particleboard output is used in furniture. Some 25% is used as underlayment for plastic laminates, and as a base for resilient flooring—e.g., linoleum, vinyl. Paneling takes about 15%, plywood (for furniture and wall panels) 4%, and doors about 3% of total output.

Building codes create no special problems for the particleboard industry—largely because producers aren't pushing competition with plywood in those areas where codes are strictest.

In other housing applications—where codes are more lenient—particleboard is doing well. The industry has gained a decided advantage through FHA-published specifications, which approve use of particleboard in floor underlays and in cabinet work. FHA's recommendations are significant because the organization directly controls 35% of the nation's housing starts, influences another 20% indirectly through the Veterans Administration, which follows FHA standards.

Changes Coming: Particleboard markets will change considerably in the years ahead, according to industry spokesmen. There will be increased penetration of furniture outlets, more will be used in residential structural applications—particularly as sheathing and floor underlays. More will be used as underlays for plastic laminates, on walls and for industrial applications, notably electrical uses (e.g., switchboards). Particleboards suitable for finish flooring and outdoor applications have not yet been developed.

Flakeboard producers expect heavier competition with the plywood industry but they say plywood makers will be at a disadvantage, for several reasons: rising production costs, labor problems, rough foreign competition.

Although the U.S. is second-largest particleboard producer (Germany is first), the industry isn't bothered much by foreign competition because of adequate tariff protection. But there's some agitation to cut tariffs; if that happens, U.S. particleboard makers could be in trouble.

In any case, market potentials of the particleboard industry—for flakeboard, particularly—look very good. And there's little doubt that the CPI will try its best to develop these products into heavyweight contenders in the lush building materials market.

†Hardboard consists of felted wood fibers, pressed into boards, using primarily the wood's own ligneous material as binder. Particleboards are of several types: some contain small, random-size particles, others are made of chips, shavings, or flakes; all are bonded with synthetic resins or other artificial binders. Flakeboard is made of virgin greenwood because flake sizes must be uniform, can't be made from scrap or dry wood.

Another family of useful chemicals from
CARBIDE

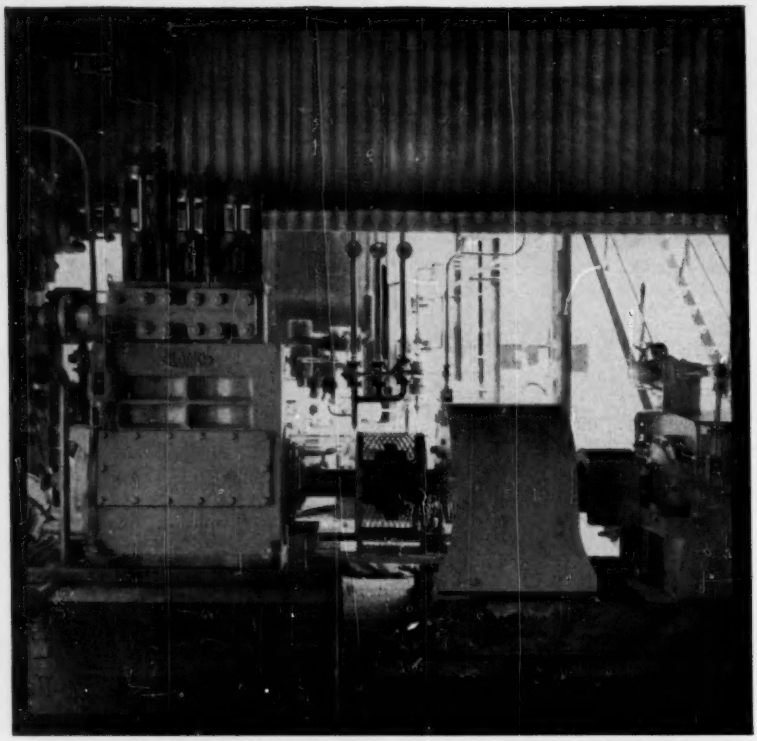
ESTERS

- Ethyl Formate
- Ethyl Acetate
- Isopropyl Acetate
- Butyl Acetate
- Isobutyl Acetate
- Primary Amyl Acetate
- Methyl Amyl Acetate
- 2-Ethylhexyl Acetate
- Methyl CELLOSOLVE Acetate
- CELLOSOLVE Acetate
- Butyl CELLOSOLVE Acetate
- CARBITOL Acetate
- Butyl CARBITOL Acetate
- Methoxytriglycol Acetate
- Glycol Diacetate
- Ethyl Acetoacetate
- Diethyl Sulfate
- Tetraethyl Orthosilicate
- Tetra(2-Ethylbutyl) Silicate
- Tetra(2-Ethylhexyl) Silicate
- Diethyl Succinate
- Methyl Vinyl Acetate
- Sucrose Octa Acetate
- Propylene Carbonate
- Ethylene Carbonate

For a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BI., Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

UNION CARBIDE CHEMICALS COMPANY
DIVISION OF UNION CARBIDE CORPORATION

"Carbitol", "Cellosolve", and "Union Carbide" are registered trade marks of UCC



THE PRESSURES ARE HIGH...THE LIQUIDS CORROSIVE...THE PUMPS ARE ALDRICH...

At the Houston plant of Rohm & Haas Co., this Aldrich pump alternately introduces caustic and brine into one phase of the acrylate process for producing acrylic monomers.

The problem: Handle highly corrosive liquids at 3000 psi in a continuous process and *not* have severe maintenance problems.

What Rohm & Haas did about it. Company engineers specified Aldrich 1⅝" x 5" stroke Triplex Pumps for three reasons.

1. Compact, heavy-duty construction makes Aldrich pumps ideal for high pressure service.

2. Aldrich pumps are designed for easy maintenance. Fluid-end sectionalization permits quick removal of valves for inspection or replacement. No special tools are required.

3. Aldrich engineers can draw upon a vast store of experience when it comes to selecting the right materials for any pumping job. In this case, the entire fluid end . . . working barrel, suction and discharge manifolds . . . are forged Monel. Valve seats are Haynes Stellite. Valves and plungers are K Monel.

Results: According to the Plant Manager of the Houston plant, "maintenance requirements have decreased and pumping production improved. These Aldrich pumps lend themselves to easy maintenance."

How Aldrich can help you. Solving pumping problems like this requires specialized engineering skills and experience. We have those skills, and our experience comes from years of working with the chemical industry. We welcome the opportunity to discuss your specific problems . . . no matter what the liquid or how high the pressures. Aldrich Pump Company, 3 Gordon Street, Allentown, Pa.

the toughest pumping problems go to ALDRICH

Physical Testing Hit

With interest in high-speed strength tests growing, charts like those at the right may soon become a familiar sight to CPI management in the plastics and metals fields. And, betting their future on that possibility, two young chemists and an electronics expert are this week busily planning the first expansion of their tiny Waltham, Mass., company.

The firm, Plas-Tech Equipment Corp., is offering one of the first commercial versions of versatile, high-speed units for testing and recording the ultimate tensile, compressive and shear strengths of plastics and some metals. The machine, the company hopefully predicts, will become a useful tool for plant quality-control testing, process and product improvement and research.

Behind the CPI's interest and Plas-Tech's optimism: a growing realization that polymeric materials and many lightweight alloys are very rate-sensitive—i.e., an ultimate strength test carried out at conventional, slow-speed or static test rate (e.g., 20 in./-minute of loading) will give a different result than a test at high-speed or dynamic rate (e.g., 6,000 in./minute)—often the conditions they meet in service. And, a material that has a higher yield strength than another at slow-speed loading may have a lower yield strength than the other material at high-speed loading. This means that, until the development of high-speed test methods, end-use testing was often the only way to predict a material's performance.

Ross Supnik, one of the Plas-Tech triumvirate, explains it this way: "When you squeeze two rubber balls, they may feel the same, or one may feel slightly softer than the other; but you can't tell which one will bounce higher unless you bounce them. Slow-speed testing can be likened to squeezing the balls; high-speed testing to bouncing them."

Tossing Potatoes: And this problem can confront raw-material suppliers as well as the producers of the finished item. A polyethylene maker explains quality-control test problems this way: The company says it can subject the polyethylene film it sells,

Hits High Speed

say to a potato bag maker, to conventional physical testing, but relating the results to something meaningful in terms of end-use is practically impossible. Therefore, it actually runs control tests by making sacks, filling them with potatoes, then rolling and tossing them around.

Plas-Tech believes its tester may give meaningful results in cases like this, points out that material can be prestressed with a static load (which would be the equivalent of loading a sack with potatoes) before being subjected to a rapid loading for ultimate strength testing.

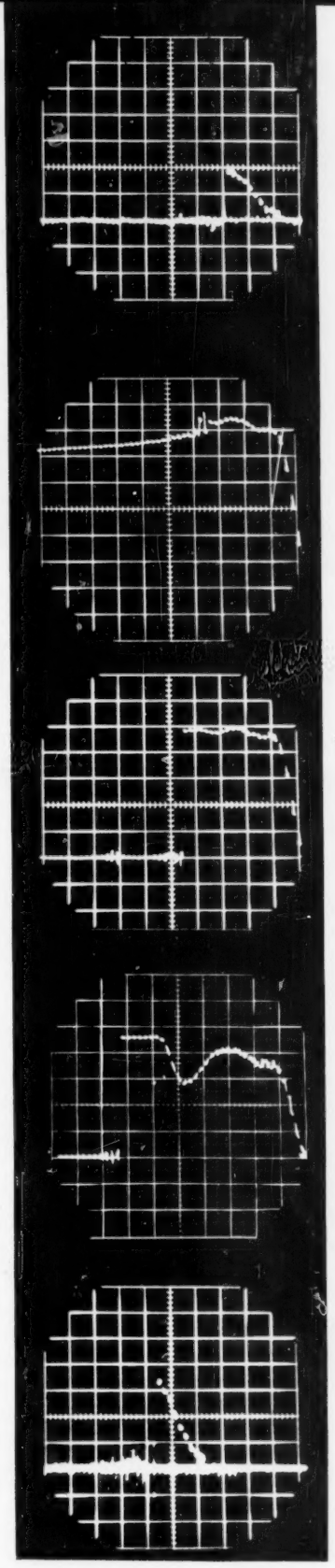
Plas-Tech reports its tester has already picked up strength differences between new and long-warehoused nylon cord that conventional static testers couldn't detect. Other applications for the unit Plas-Tech has in mind: the physical testing of solid rocket fuels, other missile materials, as well as airplane tires and many conventional packaging and cushioning materials, films and sheets.

Interest Picking Up: Many of the applications for high-speed test equipment, even on the research level of developing and screening new materials, still carry the label of "potential," however. The National Bureau of Standards, Watertown Arsenal, and a few others have done considerable work in various phases of the high-speed field. And, ASTM has held two symposiums on the speed of testing.

Most recent evidence of awakening in the field, and of the strong interest of chemical companies, is a symposium devoted entirely to high-speed testing sponsored by Plas-Tech (*CW Technology Newsletter, Dec. 20, p. 49*). Of the 68 conferees, more than 20 were from chemical firms. And many of the others were from firms that are closely allied with the chemical industry.

High-speed test equipment of the pendulum-type has long been used in the metals field. The more recent techniques, however, are often not made commercially available because they are part of the users' own "trade secrets."

MIT Development: The Plas-Tech tester was developed at MIT for



Ultimate strength tests are completed within a few milliseconds. Camera makes oscilloscope record permanent.

Another family of useful chemicals from

CARBIDE

ALCOHOLS

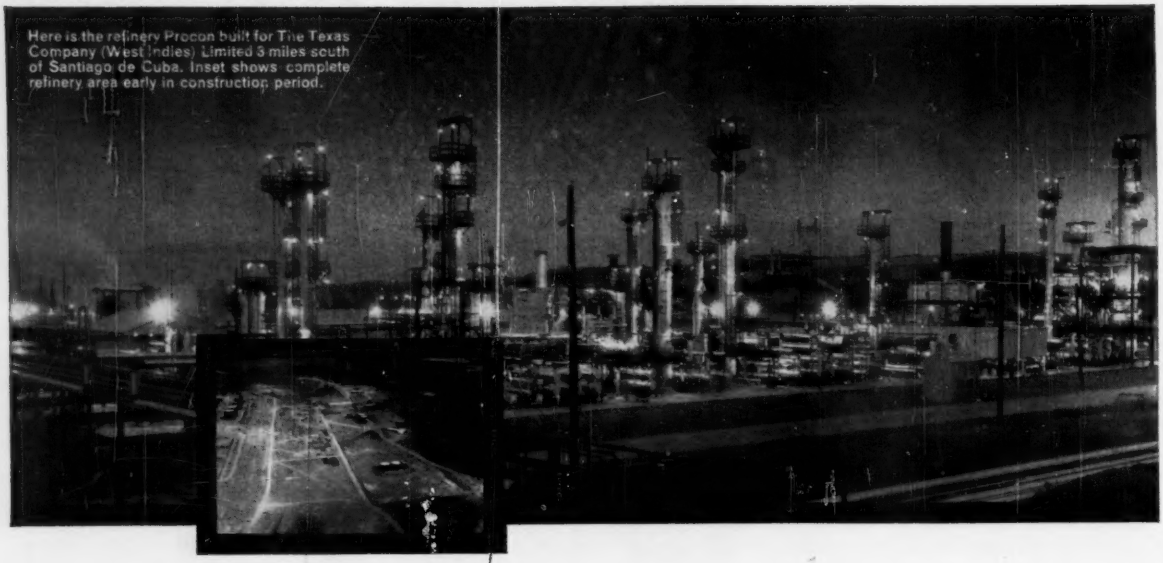
- Methanol
- Ethanol
- Isopropanol
- Butanol
- Isobutanol
- 1-Pentanol
- Primary Amyl Alcohol
- 2-Methyl-1-Pentanol
- Methyl Amyl Alcohol
- 2-Ethylbutanol
- 1-Hexanol
- 2-Ethylhexanol
- Diisobutyl Carbinol
- Iso-Decanol
- Undecanol
- 2,6,8-Trimethyl-4-Nonanol
- Tetradecanol
- Heptadecanol
- Tetrahydropyran-2-Methanol
- 2-Mercaptoethanol
- Diacetone Alcohol
- Phenyl Methyl Carbinol

For the booklet "Alcohols" plus a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BG, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York

UNION CARBIDE CHEMICALS COMPANY

DIVISION OF UNION CARBIDE CORPORATION

"Union Carbide" is a registered trade mark of Union Carbide Corporation.

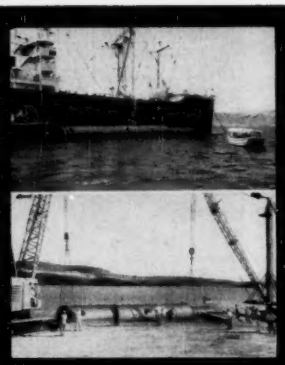


Here is the refinery Procon built for The Texas Company (West Indies) Limited 3 miles south of Santiago de Cuba. Inset shows complete refinery area early in construction period.

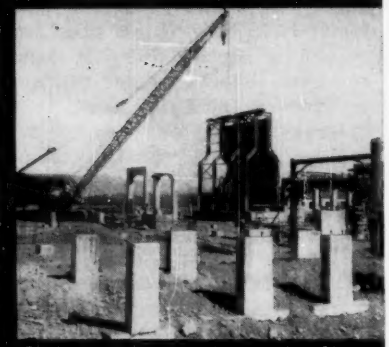
Creative Construction

how **PROCON** put it to work for Texaco in Cuba

Procon trained 85% of the Cuban workmen in construction technicalities.



Crude atmospheric column, prefabricated in the States, was floated ashore in 2 hours—a saving of much time and cost.



Solid rock was encountered at a number of locations, required blasting to sink foundations, underground piping.

It's a pretty exacting business at best, building a refinery from scratch. Procon did this one the hard way, meeting and beating the challenges of: a site difficult for access by land . . . 85% of Cuban workmen needed training in technicalities of construction . . . applying the creative solutions to the problems shown in the pictures you see here. If you have a refinery in mind . . . or a petrochemical plant, or a chemical plant, or individual process units for any of these . . . you can be sure of top-flight construction, anywhere in the world, when you call on Procon to do the job.

PROCON *Incorporated*

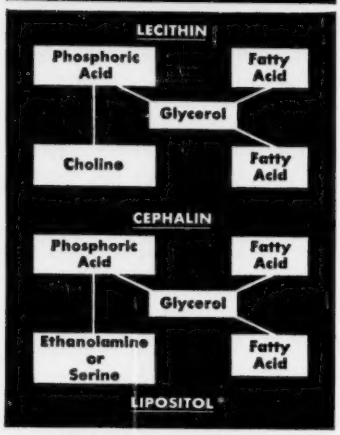
1111 MT. PROSPECT ROAD, DES PLAINES, ILLINOIS, U.S.A.

PROCON (CANADA) LIMITED, TORONTO 19, ONTARIO, CANADA
PROCON (GREAT BRITAIN) LIMITED, LONDON, W. C. 2, ENGLAND
PROCON INTERNATIONAL S. A., SANTIAGO DE CUBA

WORLD-WIDE CONSTRUCTION FOR THE PETROLEUM, PETROCHEMICAL, AND CHEMICAL INDUSTRIES

Staley's®

Products from Corn and Soybeans



Staley's Refined

LECITHIN

(POWDERED or GRANULAR)

A Refined Natural Source of Vegetable Phospholipids and Vitamins for Pharmaceutical and Nutritional Uses

Staley's, the pioneer soybean processor, offers Natural Lecithin as a nutritional adjunct or supplement. This highly refined Lecithin is a concentrate (95+%) of the naturally occuring vegetable phospholipids or phosphatides (Lecithin), Cephalin and Lipositol) and vitamins in powdered or granular form. Indicated uses are in Pharmaceutical and Dietary foods.

Staley's Refined Lecithin (powdered or granular), obtained by an advanced refining process, is uniform and free of undesirable or inedible fractions. For specific application data, call your Staley Representative at the office nearest you. Or write for descriptive literature.

***Molecular structure of Lipositol has been indicated but unconfirmed. Material does contain:**
Fatty Acid, Glycerol, Inositol, Galatose, Ethanolamine and Phosphoric Acid Radicals.

For information about other Staley Products: Lecithin, Leucine, Phytic Acid, Inositol, Tyrosine, MSG, HVP, Calcium Phytate, Amino Acid Mixtures, Corn Steep Liquor and Fermentation Nutrients, write:

A. E. Staley Mfg. Co., Decatur, Ill.

measuring stress relaxation, since conventional testing methods are hard to apply because of the time it takes to stress the material. The unit's potential for ultimate strength testing wasn't realized until later. Supnik and Mel Silberberg, the second member of the Plas-Tech triumvirate, heard about the tester while members of Foster Grant's research staff. When Supnik ordered a machine from the original Plas-Tech owners and did not receive it after six months, he and Silberberg—along with the electronics expert of their team, Ralph Margulies—solved their slow delivery problem by purchasing the company. They have been devoting full time to it for about a year.

Silberberg is now Plas-Tech's president; Margulies, vice-president; Supnik, treasurer.

Their test unit is simple. It consists of an air cylinder, high- and low-speed load cells, jigs for holding the test specimen, an oscilloscope with Polaroid Land Camera and a chart with pen-and-ink recorder. Any dry gas (Plas-Tech is using cylinder nitrogen) can be used to supply the load force. Because many tests are completed within a few milliseconds, the oscilloscope and camera are used for recording; the pen-and-ink recorder picks up longer-term tests. Unit price is $10,000.

Other test devices, using gravity-force, hydraulic, ballistic or spring-action systems are possible. A few are in use. For example, Plas-Tech is also making a dart-drop impact tester (gravity force) developed by Monsanto and well-known for testing plastic films.

Each type of high-speed equipment could find a place in physical testing. And, as Silberberg points out, high-speed test equipment of any type will not necessarily replace conventional, static testers. "Our aim is to help fill a gap," he says.

But temporarily, at least, Silberberg doesn't see a quick filling of that gap. Even with the strong interest shown in high-speed test equipment, it takes time to convince most potential customers that they really need it, he says.

"It is one thing to show people the results of high-speed tests. But our biggest job right now is to show them how to use the results intelligently," says Supnik.

Another family of useful chemicals from

CARBIDE

ORGANIC CHLORINE COMPOUNDS

- Ethylene Dichloride
- Propylene Dichloride
- Triglycol Dichloride
- 1,1,2-Trichlorethane
- Butyl Chloride
- 2-Ethylhexyl Chloride
- iso-Decyl Chloride
- Epichlorhydrin
- Ethylene Chlorhydrin
- Polyethylene Glycol Chloride 210
- Polyethylene Glycol Chloride 410
- Polyethylene Glycol Chloride 610
- Dichlorethyl Ether
- Dichlorisopropyl Ether

For the booklet "Organic Chlorine Compounds" plus a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BI, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

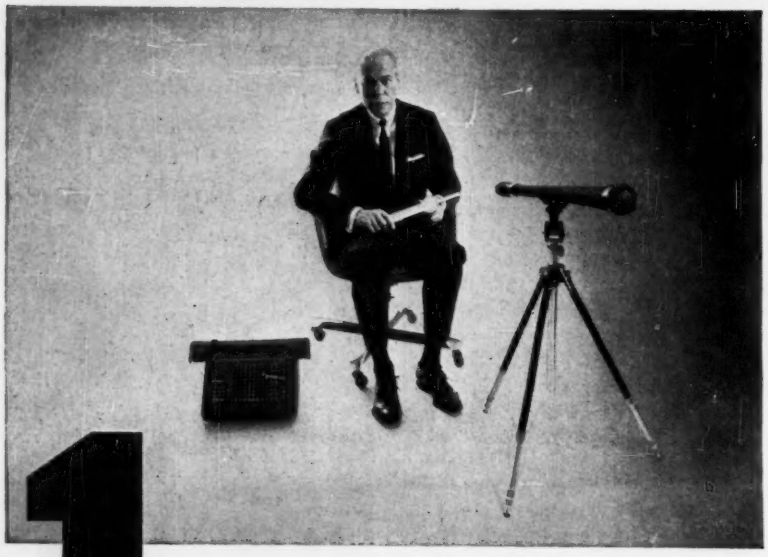
UNION CARBIDE CHEMICALS COMPANY

DIVISION OF UNION CARBIDE CORPORATION

"Union Carbide" is a registered trade mark of Union Carbide Corporation.

WKE TAKES A LONG LOOK AT PLANT FEASIBILITY

Look to the men of WKE to anticipate the hidden factors of successful plant development. Evaluations, detailed studies and reports project the profitable approach to plant problems — through every phase.



1 project development

project development • project management • design & engineering • construction

WKE® WESTERN-KNAPP ENGINEERING CO.
SAN FRANCISCO • NEW YORK • CHICAGO • HIBBING

THESE COMPLETE BARECO WAX FACILITIES

- *Research*
- *Refining*
- *Warehousing*
- *Sales Offices and Agent Stocks*

are yours . . . to help SOLVE WAX PROBLEMS LIKE THESE

Write and tell us about your product requirements for free wax samples and/or recommendations. This service is available to you at no cost or obligation—even to the extent of producing, if necessary, a "new" wax to meet your needs.

- Laminating
- Coating
- Compounding
- Sealing
- Lining
- Waterproofing
- Polish Formulating
- Electrical Insulating
- Ink Making

...and many others

AD-58-4A

BARECO WAX Company
A DIVISION OF PETROLITE CORPORATION
SALES OFFICE: Box 2009, Tulsa, Oklahoma

Petrolite

DISTRICT SALES OFFICES:
130 East 42nd Street, New York
332 So. Michigan Ave., Chicago
119 Coulter Ave., Ardmore, Pa.

Syndet Market n

New Yorkers may soon be paying more for their subway rides — but they'll get a cleaner ride for the money. The city's Transit Authority has decided to wash away the accumulated (for 50 years, in the case of some lines) grime that coats the 560 miles of subway tunnel walls. The move should delight manufacturers of cleaning agents—it takes a lot of detergent to scrub down the world's largest subway.

TA believes that the cleanup will reduce the number of mechanical failures on the system caused by grit and grime penetrating motors and control equipment.

After experimenting with various cleaning procedures, TA has decided to steam-clean the walls. They will use four 8,000-gal. tank cars attached to a flatcar containing equipment to mix a detergent solution with live steam. This is fed through one nozzle, sprayed on walls, ceilings and tracks. The washed-down dirt will be flushed through drains; any residue settling on the roadbed will be picked up by a vacuum-cleaner car. Cleaning teams will work about a mile apart.

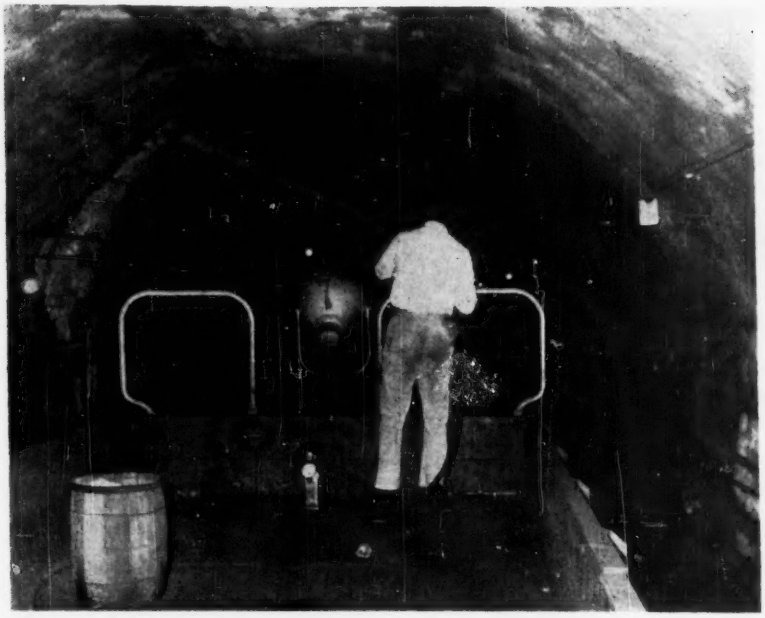
TA has already taken bids on the cleaning equipment, but Walter Schlager, the agency's assistant general superintendent in charge of maintenance of way, says the cleaning material has not yet been purchased. TA says it plans to buy a six months' supply of detergent at one time (the initial cleaning job will take 15 months), through competitive bidding.

The exact amount of detergent needed to clean the tunnels hasn't yet been determined, but TA told *CW* that whatever material it buys will be a finished product—it won't do any mixing of detergent material.

Schlager told *CW:* "There's a special problem in cleaning subway tunnels. Every kind of dirt is down there. There's iron oxide and greasy dirt, dust from subway entrances, body dirt, hair, lint and dust from grinding stone. We'll have to use a very strong cleaner—but one that won't remove the paint from the walls."

To get further data on the job of cleaning the tunnels, *CW* talked to Al Burner, of the Port of New York

n Subway Scrubbing



Big wall-wash job: New York's 560 miles of subway tunnels.

Authority. The Port Authority, which runs the Lincoln and Holland tunnels, scrubs about 780 miles of tunnels each year. To do this, Burner says, about 45,000 lbs. of tunnel cleaning compound are used each year. PA is now using a mixture of alkyl aryl sulfonate, trisodium phosphate, tetrasodium pyrophosphate and dichlorobenzene, plus some CMC. It pays about $16/100 lb. for it.

Figuring a usage figure of 30-50 lbs. of detergent per mile of tunnel (*CW* estimate), the market for cleaning the subway system should come to 17,000-28,000 lbs. It's a business well worth going after — especially since the Transit Authority plans to make the underground scrub-down an annual affair.

World Marine Paint

Aiming to establish a world standard for marine paints, manufacturers in 10 European countries have formed the Transocean Marine Paint Assn. to produce and market a common brand of paint throughout maritime countries in Europe.

Members have pooled their formulas and have selected processes for making about 40 types of marine paints. These products will be marketed under the brandname Transocean in Belgium, Denmark, France, Germany, Britain, Holland, Italy, Norway, Spain, and Sweden.

The association, which will start operating in January, hopes to eventually enroll American, Canadian and Australian members, a TMPA spokesman says.

Chill Aerosol Fill

A new method of cold-filling aerosol spray containers has been developed by Girdler Process Equipment Division of Chemetron Corp. (Chicago). The new technique—which is supposed to reduce product and solvent losses as well as cleanup time—calls for a compact ammonia-jacketed heat exchanger that has only 9 sq. ft. of heat-transfer surface, compared with about 100 sq. ft. in a conventional tubular heat exchanger.

In the Chemetron heat exchanger—called a Votator—only about 1 gal. of

Another family of useful chemicals from

CARBIDE

ETHERS AND OXIDES

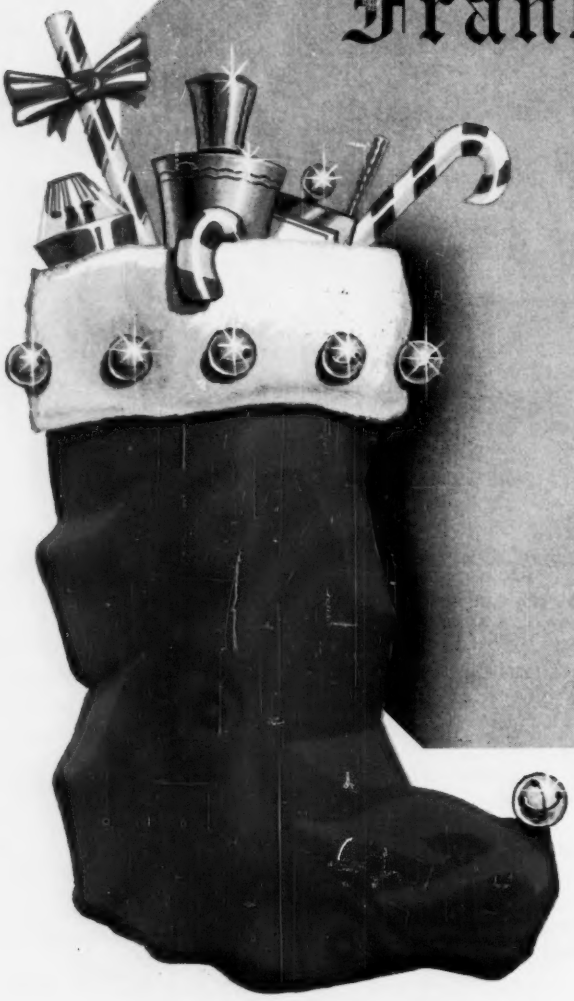
- Ethyl Ether
- Isopropyl Ether
- Butyl Ether
- Hexyl Ether
- 1,4-Dioxane
- Diethyl CARBITOL
- Dibutyl CARBITOL
- Dichlorethyl Ether
- Dichlorisopropyl Ether
- Triglycol Dichloride
- 2-Ethoxy-3,4-Dihydro-2H-Pyran
- 1,1,3-Triethoxyhexane
- 2-Methyl-2-Ethyl-1,3-Dioxolane
- Ethylene Oxide
- Propylene Oxide
- Epichlorhydrin
- Epoxide 201
- Vinylcyclohexane Dioxide
- Dibutyl CELLOSOLVE
- 1,1,3-Trimethoxybutane
- 1,1,3-Triethoxybutane

For the booklet "Ethers and Oxides" plus a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BK, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

UNION CARBIDE CHEMICALS COMPANY

DIVISION OF UNION CARBIDE CORPORATION

"Carbitol", "Cellosolve", and "Union Carbide" are registered trade marks of UCC.



Frankincense and Mirth!

Penick's diversified line is brimful of good things for the holidays!

Frankincense for liturgical use. And myrrh, too, used in incense and perfume.

Indeed, many gifts of perfume will be scented with Penick fragrances. Tons of ice cream, candy and other confections will be consumed, much of it flavored by Penick! Cocktails will be enhanced by vermouths and more potent beverages made with Penick-imported herbs and juniper berries.

If the holiday roast is a mite tough, a bit of tenderizer based on Penick's papain will help. But chances are poultry is on the menu . . . a fatter, healthier bird because of Penick antibiotics and our new anti-picking spray. Egg nogs and whipped cream may be richer and purer because our dairy sanitizer keeps dairies sparkling and cows more contented. Fruits and vegetables are prettier and more plentiful because of our insecticides.

And whenever the feasting is overdone, there are excellent remedies to relieve distress . . . incorporating Penick medicinals, of course!

In all, we hope your holidays will be bright and cheerful and your new year prosperous.

PENICK

Manufacturers of Fine Chemicals and Drugs

S. B. PENICK & COMPANY 50 CHURCH ST., NEW YORK 8 • 735 W. DIVISION ST., CHICAGO 10

FAST DELIVERY

ANOTHER REASON TO

BUY BERKSHIRE CHEMICALS

- Amorphous Silica
- Mistron* Talcs
- Magnesium Oxide
- Magnesium Carbonate

*Trade Mark

*Direct to you from one of our strategically located warehouses.

Write for new catalog!

Berkshire Chemicals INC.

630 Third Avenue, New York 17, N. Y.

Sales Offices: New York • Chicago • Philadelphia Cleveland • Boston • Pittsburgh • San Francisco

expecting an order?

You'll get it quicker if your postal zone number is on the order blanks, return envelopes, letterheads.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

SPECIALTIES

material circulates at one time. In conventional systems, 25 gal. of material are cooled at one time. But this 25 gal., plus solvent used to flush it, is usually wasted; thus, there's a saving in using the new system, Chemetron points out.

DeMert & Dougherty Inc. (Chicago) has the first installation of the equipment, is using it on a 120-can/-minute paint-filling operation.

PRODUCTS

Fire Stopper: Baltimore Paint and Chemical Corp. (Baltimore) is offering a new fire-retardant paint, tradenamed SAF (Stops All Fires). Baltimore Paint says that SAF develops into an impervious, foamlike mat that insulates painted surfaces that may be exposed to fire.

•

Blight Beater: Pentachloronitrobenzene (100% active powder) is being offered by Aceto Chemical Co. (Flushing, N.Y.) as a soil fungicide. Aceto says that PCNB may be applied during transplanting, along plant rows or in broadcast planting. It is said to protect crucifers from club root and black root, vegetables from such diseases as 'amping off, mould and scab, and ornamentals from stem rot, bulb rot and flower blight.

•

Oil Out: Betz Laboratories, Inc. (Philadelphia), consultants on industrial water problems, is out with Betz Boil-Out, a product designed to remove oil and grease from boilers. Betz Boil-Out, made from organic and inorganic emulsifying and dispersive agents, is available in 1-lb. briquettes, is packed 50 briquettes/-carton. The new product isn't suggested for removal of boiler scale or mill scale.

•

Epoxy Trio: Emery Industries, Inc. (Cincinnati), is offering three new epoxy plasticizers. Two of these, Plastolein 9213 Epoxy and Plastolein 9214 Epoxy, are epoxidized fatty acid esters said to contribute to low-temperature flexibility in addition to heat- and light-stability. The third, Plastolein 9232 Epoxy, is a polymeric-type plasticizer. Emery says all the new plasticizers may be used as stabilizers in vinyl formulations. The three products mark Emery's first venture into epoxy-type plasticizers.

Another family of useful chemicals from

CARBIDE

GLYCOLS AND TRIOLS

- Ethylene Glycol
- Diethylene Glycol
- Triethylene Glycol
- CARBOWAX Polyethylene Glycols
- CARBOWAX Methoxy Polyethylene Glycols
- Propylene Glycol
- Dipropylene Glycol
- Polypropylene Glycols
- UCON Polyalkylene Glycols and derivatives
- 2,2-Diethyl-1,3-Propanediol
- 2-Ethyl-2-Butyl-1,3-Propanediol
- 1,5-Pentanediol
- 2-Ethyl-1,3-Hexanediol
- Hexylene Glycol
- 1,2,6-Hexanetriol
- NIAX Polyurethane Intermediates —glycols and triols

For the booklets, "Glycols", "CARBOWAX Polyethylene Glycols", and "UCON Fluids and Lubricants" plus a copy of the "Physical Properties" booklet containing information on more than 360 CARBIDE chemicals, write Department BH, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

UNION CARBIDE CHEMICALS COMPANY

DIVISION OF UNION CARBIDE CORPORATION

"Carbowax", "Niax", "Ucon", and "Union Carbide" are registered trade marks of UCC.

CHEMICAL WEEK • ADVERTISERS' INDEX

December 27, 1958

ALDRICH PUMP CO. 76
Agency—Harris D. McKinney, Inc.

ALLIED CHEMICAL CORP., NITROGEN DIV. 16
Agency—G. M. Basford Co.

AMERICAN MINERAL SPIRITS CO. 35
Agency—Leo Burnett Co., Inc.

AMERICAN POTASH & CHEMICAL CORP. 11
Agency—The McCarty Co.

ATLANTIC REFINING CO. 54-55
Agency—N. W. Ayer & Son, Inc.

BARECO WAX CO., DIV. OF PETROLITE CORP. 80
Agency—Bass-Hodgson-Neuwoehner Adv.

BERKSHIRE CHEMICALS, INC. 83
Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.

BIRD MACHINE CO. 6
Agency—Walter B. Snow & Staff, Inc.

BLOCKSON CHEMICAL CO. 13
Agency—Wm. Balsam Adv.

CABOT, INC., GODFREY L. 53, 56
Agency—Larcom Randall Adv., Inc.

CATALYTIC CONSTRUCTION CO. 33
Agency—Doremus & Co.

CHICAGO BRIDGE & IRON CO. ..... 3rd cover
Agency—Russell T. Gray, Inc.

COMMERCIAL SOLVENTS CORP. 57
Agency—Fuller & Smith & Ross, Inc.

DEHYDAG, DEUTSCHE HYDRIERWERKE GMBH. 56
Agency—Publicitas GmbH.

DIXON CHEMICAL & RESEARCH, INC. .. 2
Agency—Ray Ellis Adv.

DOWELL 1
Agency—Rives, Dyke & Co., Adv.

EIMCO CORP., THE 9
Agency—The Matale Co.

ENJAY CO. 74
Agency—McCann-Erickson, Inc.

FISHER CHEMICAL CO., INC. 64
Agency—Sam J. Gallay Adv.

FOOTE MINERAL CO. 72
Agency—The Harry P. Bridge Co.

FRONTIER CHEMICAL CO. 27-28
Agency—The McCormick-Armstrong Co.

GENERAL AMERICAN TRANSPORTATION CORP., TERMINAL DIV. 4
Agency—Edward H. Weiss & Co.

GRAVER TANK & MFG. CO. 19
Agency—Ladd, Southward & Bentley, Inc.

HARCHEM DIV., WALLACE & TIERNAN, INC. 30
Agency—Branstater Assoc., Inc.

HOOKER CHEMICAL CORP., PHOSPHOROUS DIV. 10
Agency—The Rumrill Co., Inc.

HOOKER CHEMICAL CORP. 63
Agency—The Rumrill Co., Inc.

JEFFERSON CHEMICAL CO. 36
Agency—Hazard Adv., Agency

KAY-FRIES CHEMICALS, INC. 32
Agency—Richard Lewis Adv.

KOPPERS CO., INC. 65
Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.

MISSISSIPPI LIME CO. 31
Agency—Ridgway Advertising Co.

PENICK & CO., S. P. 82
Agency—James J. McMahon Adv.

PERMUTIT CO., THE 68
Agency—The Rumrill Co., Inc.

PFIZER & CO., INC., CHARLES 7
Agency—MacManus, John & Adams, Inc.

PROCON, INC. 78
Agency—Tobias, O'Neill & Gallay, Inc.

RHODIA, INC. 29
Agency—Sudler & Hennessey, Inc.

ROHM & HAAS CO. 8
Agency—Arndt, Preston, Chapin, Lamb & Keen, Inc.

SCIENTIFIC DESIGN CORP. ..... 4th cover
Agency—Michel Cather, Inc.

SEMET-SOLVAY PETROCHEMICAL DIV., ALLIED CHEMICAL CORP. 34
Agency—Benton & Bowles, Inc.

SHELL OIL CO. 60
Agency—J. Walter Thompson Co.

SOLVAY PROCESS DIV., ALLIED CHEMICAL CORP. ..... 2nd cover
Agency—Atherton & Currier, Inc.

SOUTHERN STATES CONTAINER DIV., REYNOLDS ALUMINUM SUPPLY CO. .. 15
Agency—George & Glover, Adv.

STALEY MFG. CO., A. E. 79
Agency—Erwin Wasey-Ruthrauff & Ryan, Inc.

STEARNS ROGER MFG. CO. 12
Agency—Mosher, Reimer, Williamson Adv.

TITANIUM PIGMENT CORP., SUB. OF NATIONAL LEAD CO. 14
Agency—Doyle, Kitchen & McCormick, Inc.

TRULAND CHEMICAL CO. 71
Agency—Ray Ellis Adv.

UNION BAG-CAMP PAPER CORP. 58
Agency—Smith, Hagel & Knudsen, Inc.

UNION CARBIDE CHEMICALS CO., DIV. OF UNION CARBIDE CORP. 73, 75, 77, 79, 81, 83
Agency—J. M. Mathes, Inc.

U.S. STEEL CORP., CHEMICALS DIV. .. 66-67
Agency—Batten, Barton, Durstine & Osborn, Inc.

VAN AMERINGEN-HAEBLER, INC. 5
Agency—Oliver Beckman, Inc.

WESTERN-KNAPP ENGINEERING CO. 80
Agency—Westcott-Frye & Assoc., Inc.

WOLF & CO., JACQUES 59
Agency—Riedl & Freed, Inc.

tracers SECTION

(Classified Advertising)

F. J. Eberle, Business Mgr.

CHEMICALS: Offered/Wanted 85

EMPLOYMENT 85

EQUIPMENT: Used/Surplus New For Sale 85

WANTED 85

MANAGEMENT SERVICES 84

SPECIAL SERVICES 85

ADVERTISING STAFF

Atlanta 3 ..... Robert H. Powell, 1301 Rhodes-Haverty Bldg., JAckson 3-6951

Boston 16 .. Paul F. McPherson, 350 Park Square Building, HUbbard 2-7160

Chicago 11 ..... Alfred D. Becker, Jr., R. J. Claussen, 520 N. Michigan Ave., MOhawk 4-5800

Cleveland 13 .... H. J. Sweger, Duncan C. Stephens, 1164 Illuminating Bldg., 55 Public Square, SUperior 1-7000

Dallas 1 ..... Gene Holland, Gordon Jones, The Vaughn Bldg., 1712 Commerce St., Riverside 7-5117

Denver 2 ..... J. Patten, 1740 Broadway, ALpine 5-2981

Detroit 26 ..... H. J. Sweger, Jr., 856 Penobscot Bldg., WOodward 2-1798

Frankfurt/Main ..... Michael R. Zeynel, 1, Rechneigraben, Germany

London E.C. 4 .. E. E. Schirmer, McGraw-Hill House, 95 Farringdon St., England

Los Angeles 17 ..... John B. Uphoff, 1125 West Sixth St., HUntley 2-5450

New York 36 ..... Knox Armstrong, B. A. Johnson, P. E. McPherson, Charles F. Onasch, L. Charles Todaro, 500 5th Ave., OXford 5-5959

Philadelphia 3 .. William B. Hannum, Jr., 6 Penn Center Plaza, LOcust 8-4330

Pittsburgh 22 ..... Duncan C. Stephens, Room 1111 Henry W. Oliver Bldg., EXpress 1-1314

San Francisco 4 .... William C. Woolston, 68 Post St., DOuglas 2-4600

St. Louis 8 ..... R. J. Claussen, 3615 Olive St., Continental Bldg., JEfferson 5-4867

Management SERVICES

- General Consulting
- Management
- Patents
- Systems Engineering
- Instrumentation
- Equip. Design
- Catalyst Development
- Translation
- Chemical & Bacteriological Analysis

ARIES ASSOCIATES, INC.
Technical and Economic Consultants to the Chemical Industry
New Products & Processes
Technical & Economic Studies
Design and Initial Operation of Complete Plants
Process Analysis—Market Research
77 South St. Stamford, Conn.
DA 5-2236

BERG BOAT COMPANY
Specialists in
MARINE TRANSPORTATION OF CHEMICALS
Transportation Systems
Coastwise and Inland Waterways
Studies—Reports—Contracts
Frederick C. Berg—Marine Engineer
410 North American Bldg., Wilmington, Delaware
Telephone Olympia 6-0522

THE C. W. NOFSINGER CO.
"In Engineering, It's the PEOPLE that Count"
Engineers and Contractors for the Petroleum and Chemical Industries
307 East 63rd Street
Kansas City 13, Missouri
Phone EMerson 3-1460

JAMES P. O'DONNELL
Consulting Engineer
Professional Engineering for the Petroleum and Process Industries
39 Broadway
New York 6, N. Y.
Beaumont, Texas

Robinette Research Laboratories, Inc.
Industrial Research : : Consultation
Technical and Economic Surveys : : Product Development : : Chemical Market Research
16 East Lancaster Avenue, Ardmore, Pa.
Tel. Midway 2-6457

Professional Assistance

in solving your most difficult problems is offered by consultants whose cards appear in this section.

Tracers TO THE CHEMICAL PROCESS INDUSTRIES

- **Display Rate—** $24.50 per inch. Contract rates on request. Subject to Agency Commission.
- **Undisplayed Rate—** $3.00 a line, minimum, 3 lines.

BUYERS OF SURPLUS

Chemicals—Oils—Solvents
Drugs—Resins—Waxes
Plasticizers—Colors—Etc.

BARCLAY CHEMICAL COMPANY, INC.
75 Varick Street New York 13, N. Y.
WORTH 6-4533

SURPLUS BOUGHT
ODD LOTS—DISCONTINUED RAW MATERIALS —SPENT OR CONTAMINATED SOLVENTS RESIDUES—METAL SLUDGES— OBSOLETE PLANT INVENTORIES
Industrial By-Products & Surplus Co.
DIV. OF ACETO CHEMICAL CO., INC.
40-40C Lawrence St., Flushing 54, N. Y.
INdependence 1-4100

WEST COAST PRIVATE LABELING, CONTRACT PACKAGING — COMPLETE SERVICE
Compounding, filling, labeling, warehousing, shipping.
Rigid controls, highest quality, centrally located on Western Seaboard.
Reply SS-9344 Chemical Week
68 Post St., San Francisco 4, Calif.

PRIVATE FORMULA MANUFACTURE—CLEVELAND
Chemical products manufactured, packaged (5 gallons and up), and labeled to your specifications. Laboratory available for analysis and control. Security of formulas and customers guaranteed. Write or call for quotations or more details.
The L. A. Lux Company—R. R. Cavano
2285 Scranton Road, Cleveland 13, Ohio
Prospect 1-2625

AUTOCLAVE WANTED
3000 to 6000 gallon. Type 316 or 347 stainless steel, solid or clad. Will consider glass-lined. To operate at 400 psi and 400°F. Prefer heat coils but will consider jacketed type.
W-v507 Chemical Week
520 N. Michigan Ave., Chicago 11, Ill.

BUSINESS OPPORTUNITIES

For Rent or For Sale—Large Ball Mill with working and storage space. Racine Industrial Plant, Inc. 1405 Sixteenth Street, Racine, Wisconsin.

A substantial international group with considerable manufacturing capacity both in the U. K. and abroad would be interested to discuss products which require financial and technical backing and production capacity for development. BO-9554, Chemical Week.

FOR SALE

Vacuum Still, 1400 gal., T316 SS, ASME 175#, vertical, 5' x 11'. Perry Equipment Corporation, 1415 N. Sixth St., Philadelphia 22, Pa.

Rotary Dryer, Hardinge #XA-18, double shell, 8'8" x 70', §§" outer shell. Perry Equipment Corp., 1415 N. Sixth St., Philadelphia 22, Pa.

Mill, Raymond #3036 hi-side three roll, with whizzers, fans, cyclones, motors, etc. Perry Equipment Corp., 1415 N. 6th St., Phila. 22, Pa.

Lorol 7—Off-spec, 30 drums for best offer; Redistilled Trichlorethylene, bulk or drums, below market. FS-9465, Chemical Week.

WANTED

Wanted: Off specification or contaminated propylene glycol, maleic or phthalic anhydride. Interested in drum or bulk quantities. Write—American Petrochemical Corporation, Minneapolis 18, Minnesota.

Equipment Wanted—Second hand anhydrous ammonia cylinders in usable condition. W-9539, Chemical Week.

Employment OPPORTUNITIES

Rate • Displayed
$48.00 per inch. Contract rates on request. Advertising inch measures ⅞ inch vertically on one column, 3 columns to a page. Subject to Agency Commission.

• Closing Date —
Each Tuesday, 11 days prior to publication date.

Rate • Undisplayed
$3.00 a line; minimum, 3 lines. To figure advance payment, count 5 average words as a line. 10% discount if full payment is made in advance for 4 consecutive insertions.

• Box Numbers —
Count as one additional line in undisplayed ads.

Announcing . . . a change in the Classified format of CHEMICAL WEEK

Beginning with the January 3, 1959 issue the publishing format of the Classified sections will be altered. All of the Classified (Tracers Section) will appear in an undisplayed style.

For additional information about the Tracers Section—Write:

Chemical Week
Classified Advertising Division
Post Office Box 12
New York 36, N. Y.

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

POSITION VACANT

District Sales Managers-Outstanding opportunity for men 30-45 years old with experience in sales and supervision—Industrial Soaps, Detergents, Metal Cleaners and Degreasers. Must have background of Chemistry both high school and college. Excellent starting salary with additional earned bonus, company car and travel expense. Send Complete resume P-9531, Chemical Week.

POSITIONS WANTED

Chemical sales or sales mgmt. position. 14 years with one company. Industrial and pharmaceutical experience. Prefer South, Southwest, or West Coast location. Mature, aggressive, and proven ability. Age 45. Desires growth opportunity. PW-9481, Chemical Week.

Research Chemist: Ph.D., 56, diversified experience in organic and industrial chemistry, synthesis, analysis, formulating and duplicating of specialties in the surfactant field, wetting and chelating agents, detergents and emulsifiers, desires a responsible position. Also willing to consider an engagement as consultant. PW-9501, Chemical Week.

Chemical Engineer, B.S. 1937, M.I.T. Technical writer, eng. contracts & specs, trade journal articles, plant layout, piping design, lab, pilot plant, production. Age 44. Met N.Y. area. PW-9547, Chemical Week.

Chemical Engineer—with 14 years experience in R&D, process design from bench scale to production in org. chemicals, explosives, pharmaceuticals, linguist seeks position—midwest. PW-9542, Chemical Week.

SELLING OPPORTUNITY WANTED

Philadelphia Representatives—Seeking one addi- tional established account. Covering Pa., N. J., Del., Md. and Va. 4 Man staff. High volume. RA-9492, Chemical Week.

OPPORTUNITIES
business; personal or personnel; financial; equipment; etc., may be offered through the classified advertising section of CHEMICAL WEEK. For more information, write to: CLASSIFIED ADVERTISING DIVISION P.O. Box 12 New York 36, New York.

RESEARCH DIRECTOR

Position open in Los Angeles pharmaceutical laboratory for Research Chemist with Ph.D. in Organic Chemistry or Bio-Chemistry. Experience required in vitamin technology.

Laboratories well located near best residential areas in Metropolitan Los Angeles. Excellent salary and conditions.

Write, submitting resume of qualifications, to:
Wm. T. Thompson, c/o Wm. T. Thompson Co.
2727 Hyperion Ave., Los Angeles 27, Calif.
or
3028 Locust St., St. Louis 3, Missouri

MARKET DEVELOPMENT

Opportunity to join Spencer Chemical Company's expanding Plastics Market Development program in a position which will permit the use of sales and technical abilities. We are seeking men who have a chemical or engineering background, and preferably three to five years' experience with thermo-plastics. A working knowledge of polyethylene and nylon is desirable but not essential. A unique opportunity exists to work with a new thermo-plastic—polypropylene. Please send detailed resumé to:

W. H. Swope
Personnel Manager
Spencer Chemical Company
610 Dwight Building
Kansas City 5, Missouri

EXCELLENT OPPORTUNITY

for young man to join the expanding Plastics Division of Spencer Chemical Company. Preferably this man should have a graduate degree with a minimum of three years' experience in the field of polyolefins. Familiarity with plastic fabrication techniques and such end uses as packaging would be desirable. Work would primarily consist of product development, technical service, and application development of polypropylene and other polyolefins. Intimate contact with similar work going on in low density polyethylene and nylon assured. Man would be headquartered in Kansas City, which offers attractive housing, excellent schooling, fine climate and a very progressive, friendly and cultural environment. This is an unusual and challenging opportunity. In reply, please send resumé of experience, education, and salary requirements to:

W. H. Swope, Jr.
Personnel Manager
Spencer Chemical Company
1004 Baltimore Avenue
Kansas City 5, Missouri

POSITION VACANT

Chemist for Research in Physical and Inorganic Chemistry, also Engineering Applications. AAA Company staffing new applied research laboratory offers permanent and challenging opportunity to the right man. Philadelphia Area. $8,000 per year. P-9482, Chemical Week.

VIEWPOINT

COULD BUREAUCRATS in Washington force up the general wage level in the chemical industry (1) without the passage by Congress of new legislation and (2) with little chance that the courts would overturn such an action? The answer is, "Yes." And the Labor Dept. is now planning hearings on whether to raise chemical industry minimums.

The law under which this is being done is the Public Contracts Act of 1936, more commonly known as the Walsh-Healey Act. It's a law passed by Congress two years before passage of the first federal minimum wage law. Walsh-Healey's direct purpose: to make sure that bidders on government contracts and subcontracts meet minimum predetermined wage standards. But its impact falls on all industry.

Almost all chemical companies sell something to the government; and this is what could happen:

- Since the coming redeterminations will be based on data collected during '58 (a period in which there was little labor turnover and less new hiring), companies may be forced to pay inflated wages.
- The Labor Dept.'s avowed aim of eliminating all current geographic differentials in the Walsh-Healey minimums could seriously disrupt traditional chemical wage patterns.
- Higher minimums could make the industry — especially smaller manufacturers — even less able to compete with foreign chemical firms.

Well then, where do we go from here? While industry, working through MCA, will soon be preparing its case for the Labor Dept.'s formal hearings this spring, let us propose a different approach.

If there must be a higher minimum wage for industry in general, let it be set by Congress—elected by popular vote — and not by appointive officials. And if Congress decides to increase the minimum wage, it should simultaneously repeal Walsh-Healey—a law that has been obsolete for 20 years.

H. C. Johnson

Editor-in-Chief

OPINION

It's a Pleasure

TO THE EDITOR: It is with pleasure and as a constant source of information that I read CHEMICAL WEEK issue after issue. I find that your articles are informative and at the same time relatively easy to read. . . .

RALPH E. MEINTS
Partner
Vern E. Alden Co.
Chicago

Proof of the Proof

TO THE EDITOR: In going through the Nov. 22 issue of CHEMICAL WEEK, we were somewhat astonished to see . . . [the story (*p. 31*) on] Jess Ritchie and his AD-X2 battery dope.

I am afraid that Jess Ritchie is going to have an awful lot of trouble proving that the government has tested and proved his material. . . .

You may be certain that if there was any justification for the beneficial claims made by Jess Ritchie for his product, every battery manufacturer in the country would heartily endorse it

B. F. MORRIS
Executive Secretary
The Assn. of
American Battery Manufacturers, Inc.
East Orange, N. J.

Quaternaries vs. 'Staph'

TO THE EDITOR: We note your timely article "Staph Treat Tests Germicide Makers" (*CW, Nov. 15, p. 83*).

However, your statements concerning the usefulness of quaternaries as environmental disinfectants for hospital use are presented in a misleading and discriminatory fashion. . . .

At recommended use-dilution levels, i.e., 400 ppm., quaternary ammonium compounds do provide completely adequate disinfection against Gram-negative as well as Gram-positive bacteria.

[It is a] documented fact that synthetic phenolics also exhibit different levels of effectiveness against Gram-negative and Gram-positive organisms. In fact, they are much less effective against Gram-positive (staph) organisms than against Gram-negative organisms. . . . On an equal concentration basis, quaternaries are more effective against both types of bacteria than are phenolics. . . .

Quaternaries are compatible with a wide range of versatile, effective nonionic detergents, and may easily be formulated to provide one-step detergent-disinfectant products. . . .

Synthetic phenolics are seriously impaired in germicidal efficiency by nonionic detergents; furthermore, the germicidal effectiveness of iodophors is completely destroyed by alkaline residues that remain on surfaces after cleaning them with soap or other anionic detergents. The usefulness of iodophors is limited severely due to the fact that their use concentrations are so strongly acid as to seriously affect many types of surfaces and equipment.

IRVING GAINES
Sales Manager
Onyx Oil and Chemical Co.
Jersey City, N. J.

CW is pleased to publish Reader Gaines's contribution regarding the values of quaternaries. Our article was based on information gathered from manufacturers, hospitals and independent testing laboratories. We recognize that there is room in this broad area for differences of emphasis.—ED.

MEETINGS

American Assn. for the Advancement of Science, annual meeting, Sheraton-Park Hotel, Washington, D.C., Dec. 26-31.

Society of Chemical Industry, Perkin Medal Dinner, Waldorf-Astoria Hotel, New York, Jan. 9.

Compressed Gas Assn., 46th annual meeting, Waldorf-Astoria Hotel, New York, Jan. 19-20.

Assn. of American Soap and Glycerine Producers, 32nd annual convention; theme: soaps and stereo '59; Waldorf-Astoria Hotel, New York, Jan. 20-22.

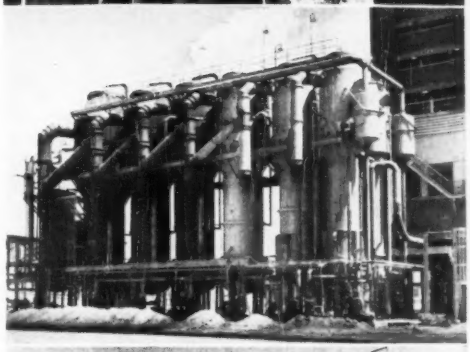
American Society for Engineering Education. Engineering Graphics Division, annual midwinter meeting, Wayne State University, Detroit, Jan. 21-23.

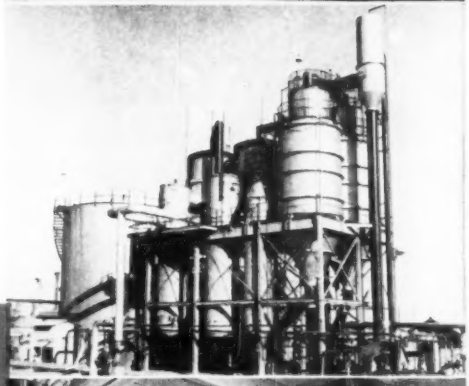
American Management Assn., special conference on plastic packaging materials, Biltmore Hotel, New York, Jan. 21-23.

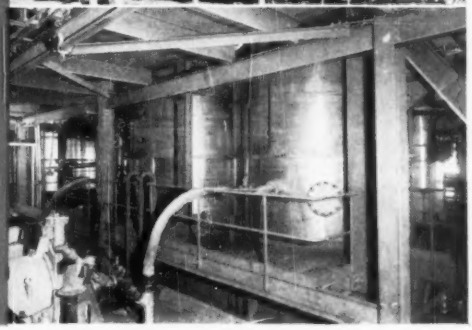
American Chemical Society, Southeastern Texas Section, third biennial symposium on hydrocarbon chemistry, Shamrock Hilton Hotel, Houston, Jan. 22-23.

CB&I-built equipment keeps

HEAT TRANSFER UNDER CONTROL







In the design of heat transfer equipment such as multiple effect evaporators and crystallizers, there is no substitute for the services of an experienced "hand" —when it comes to calculating co-efficients and selecting a type which promises the most efficiency for every operating dollar.

CB&I—long the leader in the fabrication of vessels, field erection, X-ray, stress-relieving and welding—now supplements its organization with a staff of competent, experienced chemical engineers who are capable of designing heat transfer and other process equipment to suit your needs.

Whether you are contemplating a new plant, a plant expansion, or replacement of existing equipment —it will pay you to investigate how CB&I's *coordinated* services can provide equipment that is designed, fabricated, erected, put into operation and *guaranteed* under a *single* responsibility.

Write our nearest office for details on this CB&I-Engineered equipment:

- Crystallizers
- Evaporators
- Flash Evaporation Systems
- Condensers
- Custom Made Heat Transfer Equipment
- Vacuum Dryers
- Reboilers
- Vaporizers
- Boiler Feed Water Equipment
- Vacuum Pan Dryers

C45C

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in Birmingham • Chicago • Salt Lake City • Greenville, Pa. • New Castle, Delaware

SUBSIDIARIES:
Horton Steel Works Limited, Toronto; Chicago Bridge & Iron Company Ltd., Caracas; Chicago Bridge Limited, London; Chicago Bridge Construcoes Ltda., Rio de Janeiro

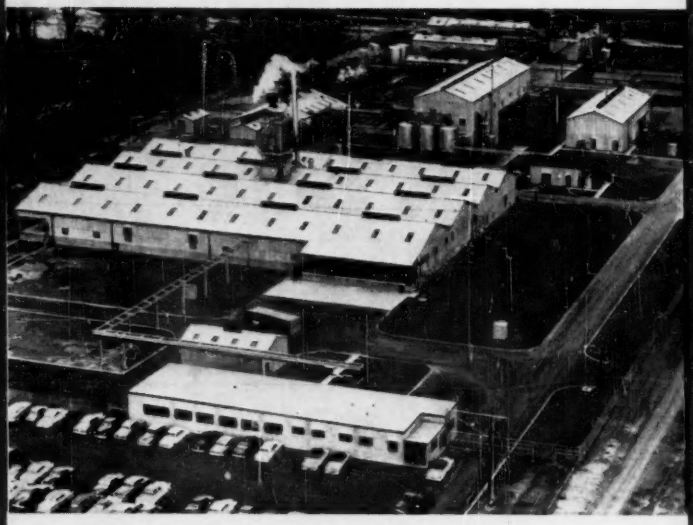
REPRESENTATIVES AND LICENSEES:
Australia, Cuba, England, France, Germany, Italy, Japan, Netherlands, Scotland

FOREMOST IN CHEMICAL PLANT
DESIGN • CONSTRUCTION • DEVELOPMENT

NUMBER ONE OF A SERIES

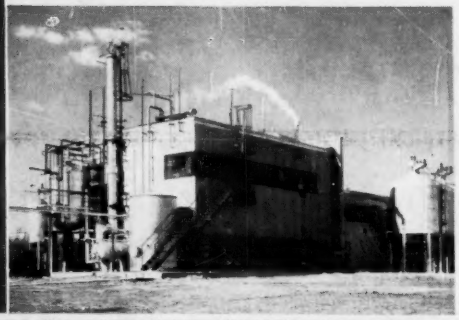
The plus factor you get from Scientific Design is process skill*

INTEGRATED COMPLEX—



Scientific Design's process skill applied to vinyl chloride monomer and polymer manufacture resulted in significant reductions in capital cost of plants—made practical for the first time small-to-medium capacity package plants—improved purity and quality of monomer and polymer products.

OR PACKAGE PLANT



↑ Integrated MVC-PVC plant for General Tire and Rubber Co.

← PVC plant for Cary Chemicals, Inc.

Other MVC or PVC plants designed by Scientific Design Co. Inc.

Diamond Alkali Company
Pantasote Company
Thompson Chemical Company
Borden Chemical Company
Atlantic Tubing and Rubber Company

Request SD "Case Histories" Brochures giving technical and economic information on MVC and PVC.

* **PROCESS SKILL** is the application of *expert chemical ability*—over and above routine engineering—to chemical plant design, construction and operation. SD's PROCESS SKILL has been gained through world-wide achievements in design and process development. This creative PROCESS SKILL is *built-in*—it is regularly a part of SD's work on your chemical plant project, whether the process is yours, SD's or a third party's. It is your best insurance of optimum plant performance and long-range economy.

SCIENTIFIC DESIGN COMPANY, INC.

EXECUTIVE OFFICES: TWO PARK AVENUE, NEW YORK 16, NEW YORK

THE SD AFFILIATED GROUP:

SD Plants Inc., Two Park Avenue, New York 16, New York

Catalyst Development Corporation, 59 Industrial Avenue, Little Ferry, New Jersey

Société Francaise des Services Techniques S. a. r. l., 52 Champs Elysees, Paris 8e, France

SD161